Service Manual

PIONEER®
The Art of Entertainment
TOYOTA

ORDER NO.
CRT2150

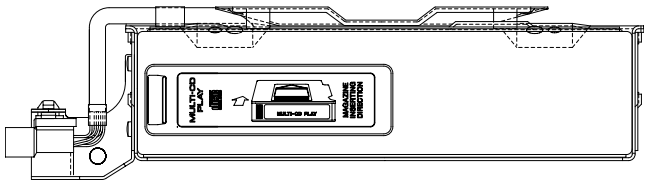
TOYOTA LAND CRUISER 100 SERIES
LEXUS LX470
AUDIO SYSTEM DISC PLAYER ASSY

VEHICLE	DESTINATION	PRODUCED AFTER	TOYOTA PART No.	ID No.	PIONEER MODEL No.
TOYOTA LAND CRUISER 100 SERIES	GERMANY, FRANCE, SWITZERLAND, SAUDI ARABIA, OMAN, U.A.E, KUWAIT	JANUARY 1998	86270-60030	———	CDX-M8086ZT/E CDX-M8086ZT-91/E
LEXUS LX470	SAUDI ARABIA, OMAN, U.A.E, KUWAIT				
TOYOTA LAND CRUISER 100 SERIES	GREAT BRITAIN, AUSTRALIA, NEW ZEALAND	JANUARY 1998	86270-60030	———	CDX-M8186ZT/WL CDX-M8186ZT-91/WL
LEXUS LX470,	AUSTRALIA, NEW ZEALAND				

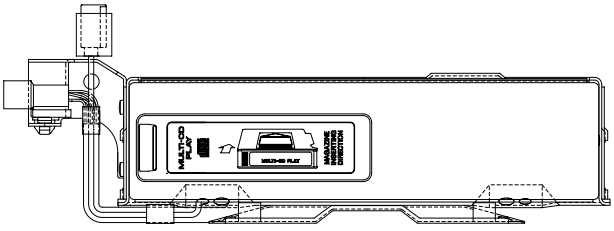
Manufactured for TOYOTA
by PIONEER ELECTRONIC CORPORATION

PUB. NO. CRT2150

• CDX-M8086ZT/E



• CDX-M8186ZT/WL



- **CDX-M8086ZT/E, CDX-M8086ZT-91/E, CDX-M8186ZT/WL, and CDX-M8186ZT-91/WL have adopted AVC-LAN.**
- **The CD mechanism employed in this model is one of C3TV series.**
- **See the separate manual CX-624 (CRT1631) for the CD mechanism description and disassembly.**
- **See the separate manual CDX-P616/UC (CRT1632) for CD circuit description.**

- **The supplementary models are identical with the original ones except for the following items.**

Description	Part No.
Polyethylene Bag	CEG1249
Carton	CHG3495
Contain Box	CHL3495
Protector	CHP2028
Protector	CHP2029

- **CD Player Service Precautions**

1. For PU unit(CGY1036) handling,please refer to "Disassembly"(Fig.20).
   During replacement,handling precautions shall be taken to prevent an electrostatic discharge(protection by a short pin).
2. Be sure to turn the power off before disassembly. An internal IC might be destroyed when a connector is plugged or unplugged.
3. These CD players have been designed to be set upright in a car. Therefore, when operating or adjusting, set them upright.

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1. SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

1. Safety Precautions for those who Service this Unit.

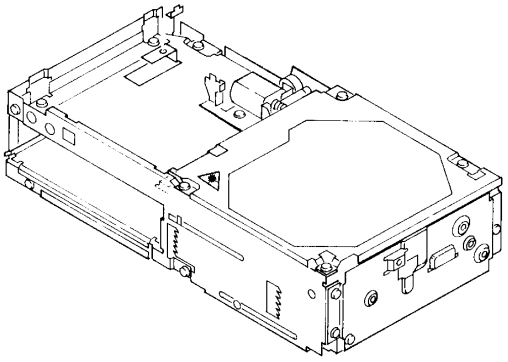
- **Follow the adjustment steps (see pages 33 through 42)in the service manual when servicing this unit. When checking or adjusting the emitting power of the laser diode exercise caution in order to get safe, reliable results.**

Caution:

1. **During repair or tests, minimum distance of 13cm from the focus lens must be kept.**
2. **During repair or tests, do not view laser beam for 10 seconds or longer.**

2. A "CLASS 1 LASER PRODUCT" label is affixed to the rear of the player.

3. The triangular label is attached to the mechanism unit frame.



4. Specifications of Laser Diode

Specifications of laser radiation fields to which human access is possible during service.
Wavelength = 785 nanometers
Radiant power = 69.7 microwatts(Through a circular aperture stop having a diameter of 80 millimeters)
0.55 microwatts(Through a circular aperture stop having a diameter of 7 millimeters)

2. EXPLODED VIEWS AND PARTS LIST

2.1 EXTERIOR

● **CDX-M8086ZT/E**

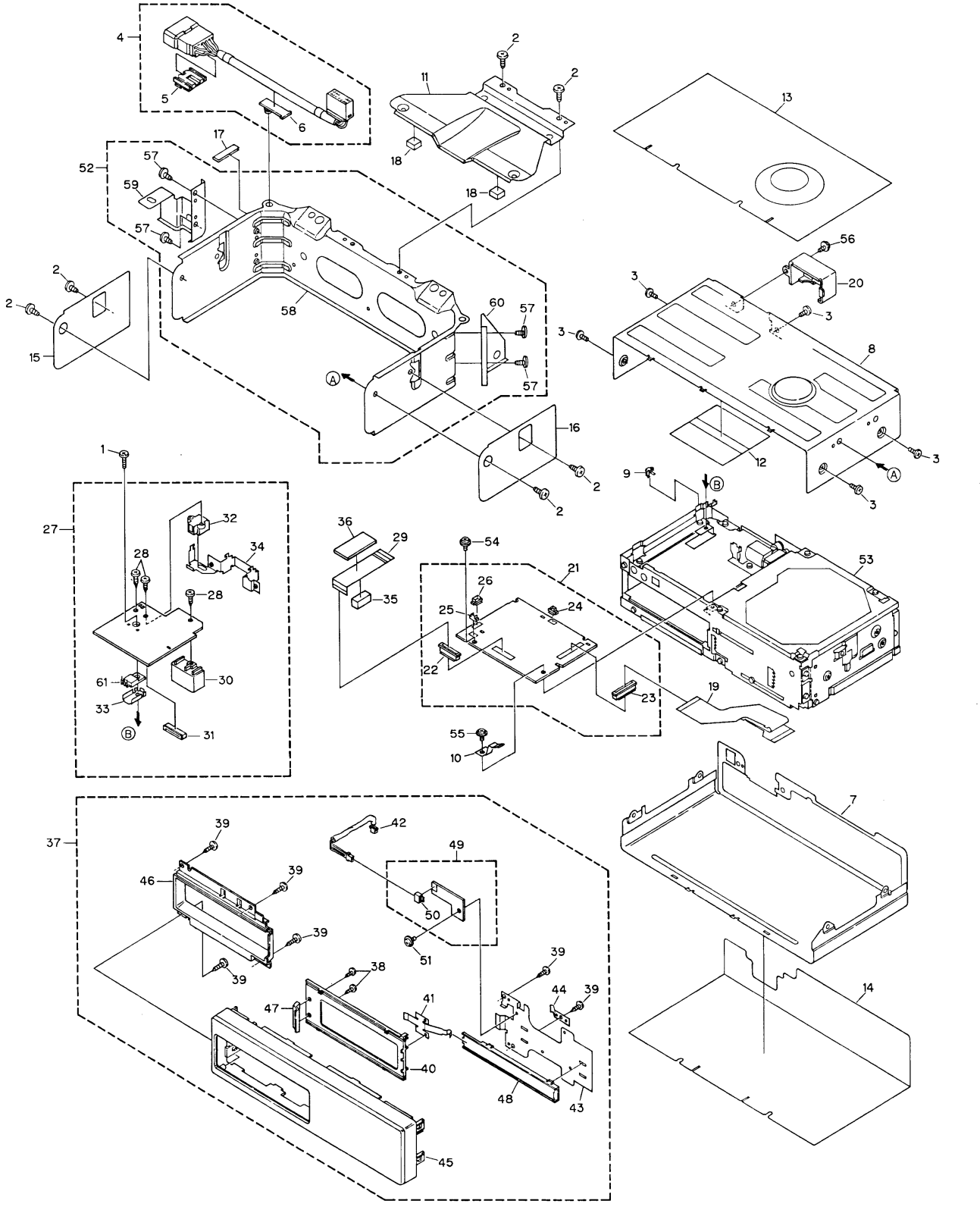


Fig. 1

NOTE:

- Parts marked by "*"are generally unavailable because they are not in our Master Spare Parts List.
- Screws adjacent to ∇ mark on the product are used for disassembly.

● EXTERIOR SECTION PARTS LIST

● CDX-M8086ZT/E

Mark	No.	Description	Part No.
	1	Screw	BMZ26P080FMC
	2	Screw	BMZ40P060FMC
	3	Screw	BSZ30P055FMC
	4	Cord	CDE5651
	5	82711-2B640	CNV5293
	6	82711-16270	CNV5294
	7	Case	CNB1987
	8	Case	CNB2015
	9	Earth Plate	CNC5769
	10	Earth	CNC6340
	11	Bracket	CNC7164
	12	Insulator	CNM4428
	13	Cushion	CNM5323
	14	Cushion	CNM5324
	15	Cushion	CNM5328
	16	Cushion	CNM5329
*	17	Corrosive Cloth	CNM5828
	18	Cushion	CNM5838
	19	PCB	CNP3954
	20	Holder	CNV4095
	21	Main Unit	CWX2123
	22	Connector(CN1701)	CKS2770
	23	Connector(CN1801)	CKS2779
	24	Connector(CN1803)	CKS3124
	25	Connector(CN1702)	CKS3125
	26	Connector(CN1802)	CKS3127
	27	Extension Unit	CWX2126
	28	Screw	CBA1339
	29	Connector	CDE5009
	30	Plug(CN901)	CKM1211
	31	Connector(CN903)	CKS2224
	32	Connector(CN951)	CKS3359
	33	Heat Sink	CNC4447
	34	Holder	CNC6544
	35	Spacer	CNM4821
	36	Spacer	CNM4822
	37	Grille Assy	CXB1309
	38	Screw	BPZ20P060FMC
	39	Screw	BPZ26P080FMC
	40	Door	CAT1882
	41	Spring	CBL1162
	42	Connector	CDE5370
*	43	Holder	CNC7128
	44	Earth Plate	CNC7791
*	45	Grille	CNS4517
*	46	Sub Grille	CNS4518
*	47	Handle	CNS4544
	48	Rail	CNV3487
	49	Grille Unit	CWM5438
	50	Plug(CN906)	CKS1050
	51	Screw	IMS26P050FMC
	52	Bracket Unit	CXB1367
	53	CD Mechanism Unit	CXK4025
	54	Screw	IMS20P030FMC
	55	Screw	IMS26P040FMC
	56	Screw	ISS30P080FZK
	57	Screw	BMZ40P060FMC
*	58	Bracket	CNC7157
*	59	Bracket	CNC7158
*	60	Bracket	CNC7339
	61	Transistor(Q911)	2SB942A

● **CDX-M8186ZT/WL**

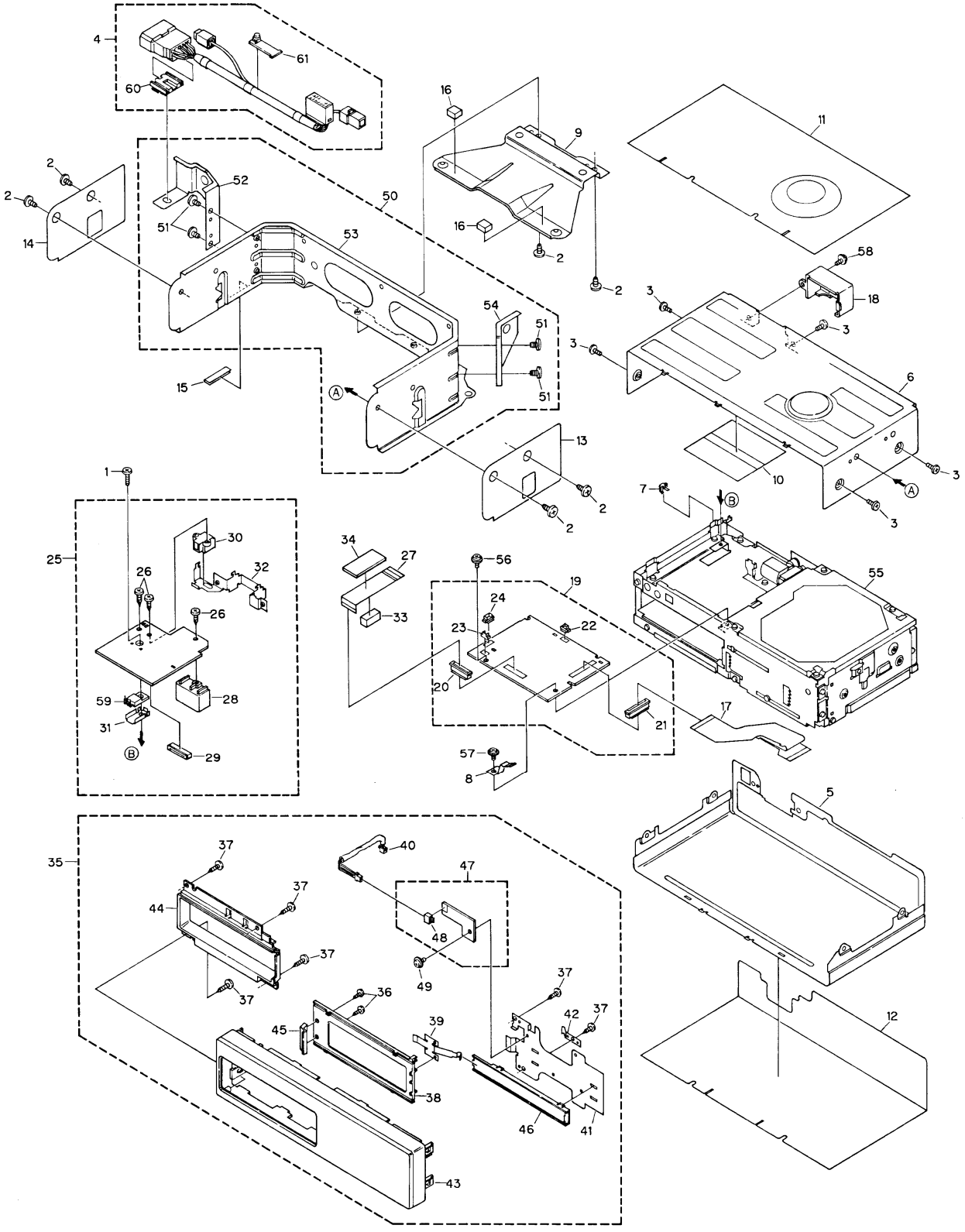


Fig. 2

● EXTERIOR SECTION PARTS LIST

● CDX-M8186ZT/WL

Mark	No.	Description	Part No.
	1	Screw	BMZ26P080FMC
	2	Screw	BMZ40P060FMC
	3	Screw	BSZ30P055FMC
	4	Cord Assy	CDE5675
	5	Case	CNB1987
	6	Case	CNB2015
	7	Earth Plate	CNC5769
	8	Earth	CNC6340
	9	Bracket	CNC7164
	10	Insulator	CNM4428
	11	Cushion	CNM5323
	12	Cushion	CNM5324
	13	Cushion	CNM5335
	14	Cushion	CNM5336
*	15	Corrosive Cloth	CNM5828
	16	Cushion	CNM5838
	17	PCB	CNP3954
	18	Holder	CNV4095
	19	Main Unit	CWX2123
	20	Connector(CN1701)	CKS2770
	21	Connector(CN1801)	CKS2779
	22	Connector(CN1803)	CKS3124
	23	Connector(CN1702)	CKS3125
	24	Connector(CN1802)	CKS3127
	25	Extension Unit	CWX2126
	26	Screw	CBA1339
	27	Connector	CDE5009
	28	Plug(CN901)	CKM1211
	29	Connector(CN903)	CKS2224
	30	Connector(CN951)	CKS3359
	31	Heat Sink	CNC4447
	32	Holder	CNC6544
	33	Spacer	CNM4821
	34	Spacer	CNM4822
	35	Grille Assy	CXB1309
	36	Screw	BPZ20P060FMC
	37	Screw	BPZ26P080FMC
	38	Door	CAT1882
	39	Spring	CBL1162
	40	Connector	CDE5370
*	41	Holder	CNC7128
	42	Earth Plate	CNC7791
*	43	Grille	CNS4517
*	44	Sub Grille	CNS4518
*	45	Handle	CNS4544

Mark	No.	Description	Part No.
	46	Rail	CNV3487
	47	Grille Unit	CWM5438
	48	Plug(CN906)	CKS1050
	49	Screw	IMS26P050FMC
	50	Bracket Unit	CXB1492
	51	Screw	BMZ40P060FMC
*	52	Bracket	CNC7163
*	53	Bracket	CNC7168
*	54	Bracket	CNC7340
	55	CD Mechanism Unit	CXK4025
	56	Screw	IMS20P030FMC
	57	Screw	IMS26P040FMC
	58	Screw	ISS30P080FZK
	59	Transistor(Q911)	2SB942A
	60	82711-2B640	CNV5293
	61	82711-16270	CNV5294

2.2 CD MECHANISM UNIT

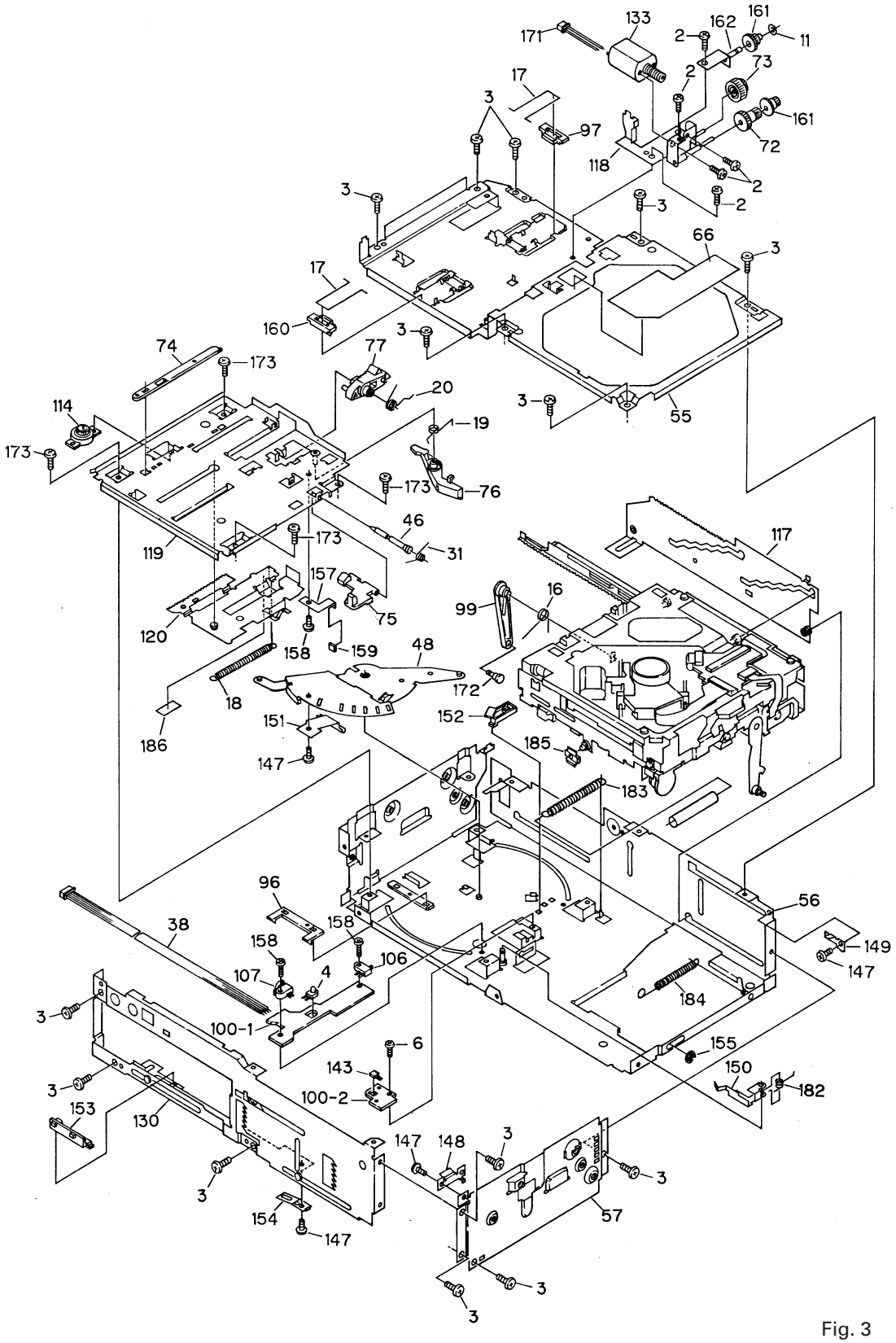


Fig. 3

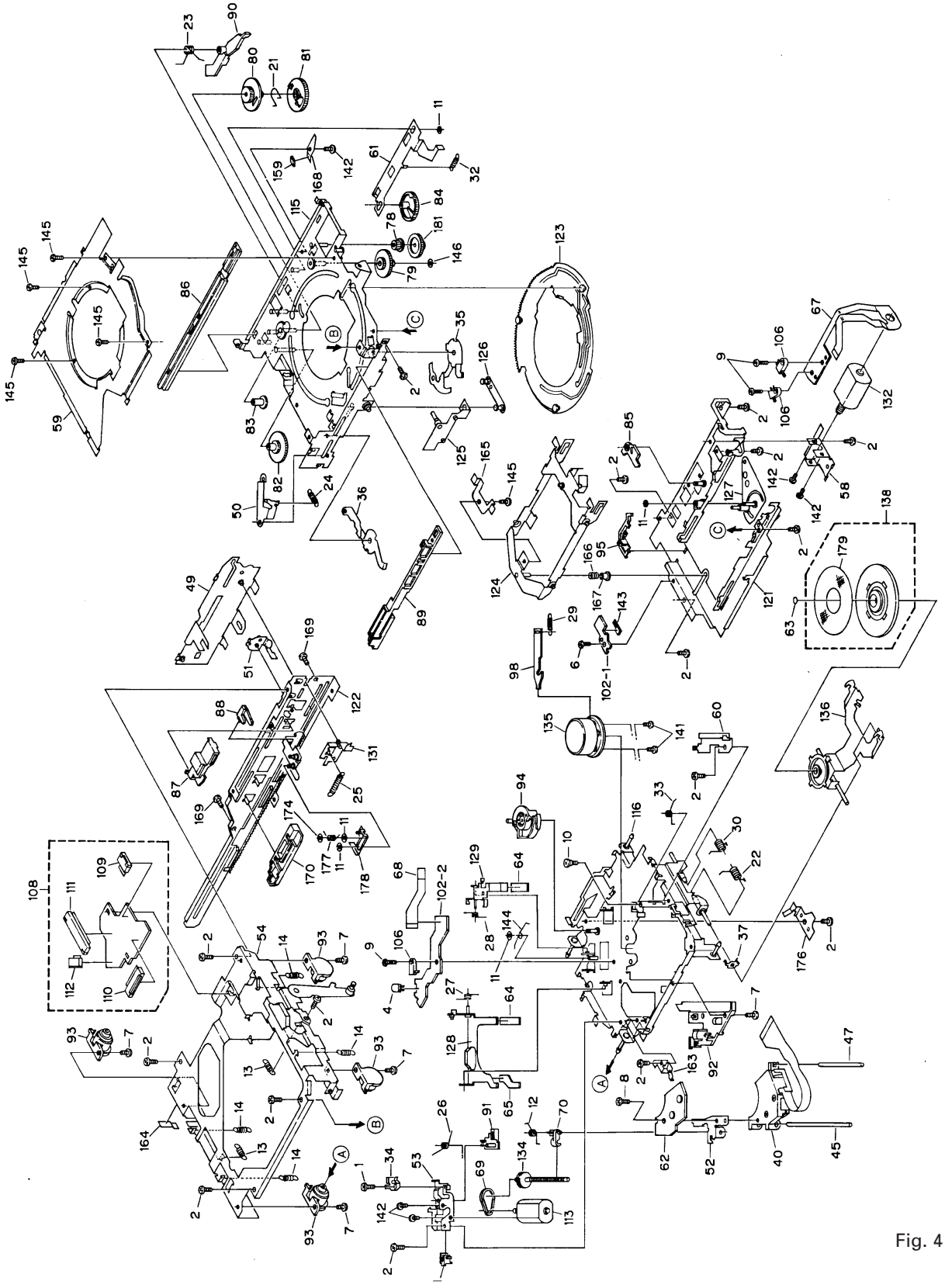


Fig. 4

● CD MECHANISM UNIT SECTION PARTS LIST

Mark No.	Description	Part No.
1	Screw	BMZ20P030FMC
2	Screw	BMZ20P025FMC
3	Screw	CBA1065
4	LED	CN504-2
5	•••••	
6	Screw	CBA1041
7	Screw	CBA1077
8	Screw	CBA1086
9	Screw	CBA1229
10	Screw	CBA1243
11	Washer	CBF1038
12	Spring	CBH1488
13	Spring	CBH1497
14	Spring	CBH1498
15	•••••	
16	Spring	CBH1987
17	Spring	CBH1589
18	Spring	CBH1986
19	Spring	CBH1592
20	Spring	CBH1593
21	Spring	CBH1594
22	Spring	CBH1596
23	Spring	CBH1876
24	Spring	CBH1599
25	Spring	CBH2102
26	Spring	CBH1605
27	Spring	CBH1606
28	Spring	CBH1607
29	Spring	CBH1843
30	Spring	CBH1633
31	Spring	CBH1667
32	Spring	CBH1706
33	Spring	CBH1841
34	Spring	CBL1157
35	Arm	CBL1186
36	Arm	CBL1187
37	Spring	CBL1210
38	Connector	CDE4244
39	•••••	
40	PU Unit	CGY1036
41	•••••	
42	•••••	
43	•••••	
44	•••••	
45	Shaft	CLA2027
46	Shaft	CLA2322
47	Shaft	CLA2345
48	Link	CNC6337
49	Lever Unit	CXA8393
50	Arm	CNC5168
51	Arm Unit	CXA8394
52	Bracket	CNC5170
53	CM Bracket	CNC5171
54	Cover Unit	CXB1365
55	Frame Unit	CXB1748
56	Main Frame Unit	CXA8953
57	Side Frame	CNC6293
58	Bracket	CNC6020
59	Cover	CNC5567
60	Cover	CNC5576
61	Lever	CNC5678
62	Plate	CNC5782
63	Spacer	CNM1787
64	Sheet	CNM3897
65	Sheet	CNM5204
66	Insulator	CNM4266
67	PCB	CNP3642
68	PCB	CNP3730
69	Belt	CNT1047
70	Rack	CNV3355
71	Holder	CNV3363
72	Gear	CNV4298
73	Gear	CNV3754
74	Guide	CNV4301
75	Arm	CNV4677
76	Arm	CNV3758
77	Arm	CNV4185
78	Gear	CNV4674
79	Gear	CNR1382
80	Gear	CNV3763
81	Gear	CNV3764
82	Gear	CNV3765
83	Gear	CNV3766
84	Gear	CNV3767
85	Arm	CNV3769
86	Guide	CNV3770
87	Guide	CNV3771
88	Guide	CNV4558
89	Guide	CNV5381
90	Arm	CNV3775

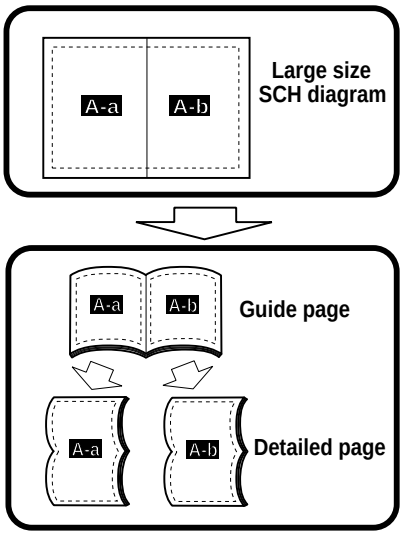
Mark No.	Description	Part No.
91	Bearing	CNV3778
92	Holder	CNV3779
93	Damper	CNV3780
94	Cam	CNV4593
95	Guide	CNV3784
96	Guide	CNV3785
97	Arm	CNV3787
98	Plate	CNV3912
99	Arm	CNV4977
100	Gathering PCB	CNX2467
101	•••••	
102	Gathering PCB	CNX2466
103	•••••	
104	•••••	
105	•••••	
106	Switch	CSN1012
107	Switch	CSN1025
108	PCB Unit	CWX1809
109	Connector	CKS1944
110	Connector	CKS1955
111	Connector	CKS1968
112	Connector	CKS2406
113	Motor Unit	CXA4649
114	Damper Unit	CXB1815
115	Stage Chassis Unit	CXA6608
116	CRG Chassis Unit	CXB1757
117	Steer Unit	CXA6610
118	Bracket Unit	CXA8395
119	Holder Unit	CXB1364
120	Lever Unit	CXA8399
121	Lower Cover Unit	CXA9196
122	Bracket Unit	CXB2731
123	Cam Ring Unit	CXA6616
124	Lever Unit	CXA8390
125	Lever Unit	CXA6620
126	Link Unit	CXA6621
127	Arm Unit	CXA6622
128	Arm Unit	CXB1120
129	Arm Unit	CXA6624
130	Frame Unit	CXB1710
131	Lever Unit	CXA8421
132	Motor Unit	CXA8656
133	Motor Unit	CXB1407
134	Screw Unit	CXA6990
135	Motor Unit	CXA8217
136	Arm Unit	CXA8957
137	•••••	
138	Clamper Unit	CXA7632
139	•••••	
140	•••••	

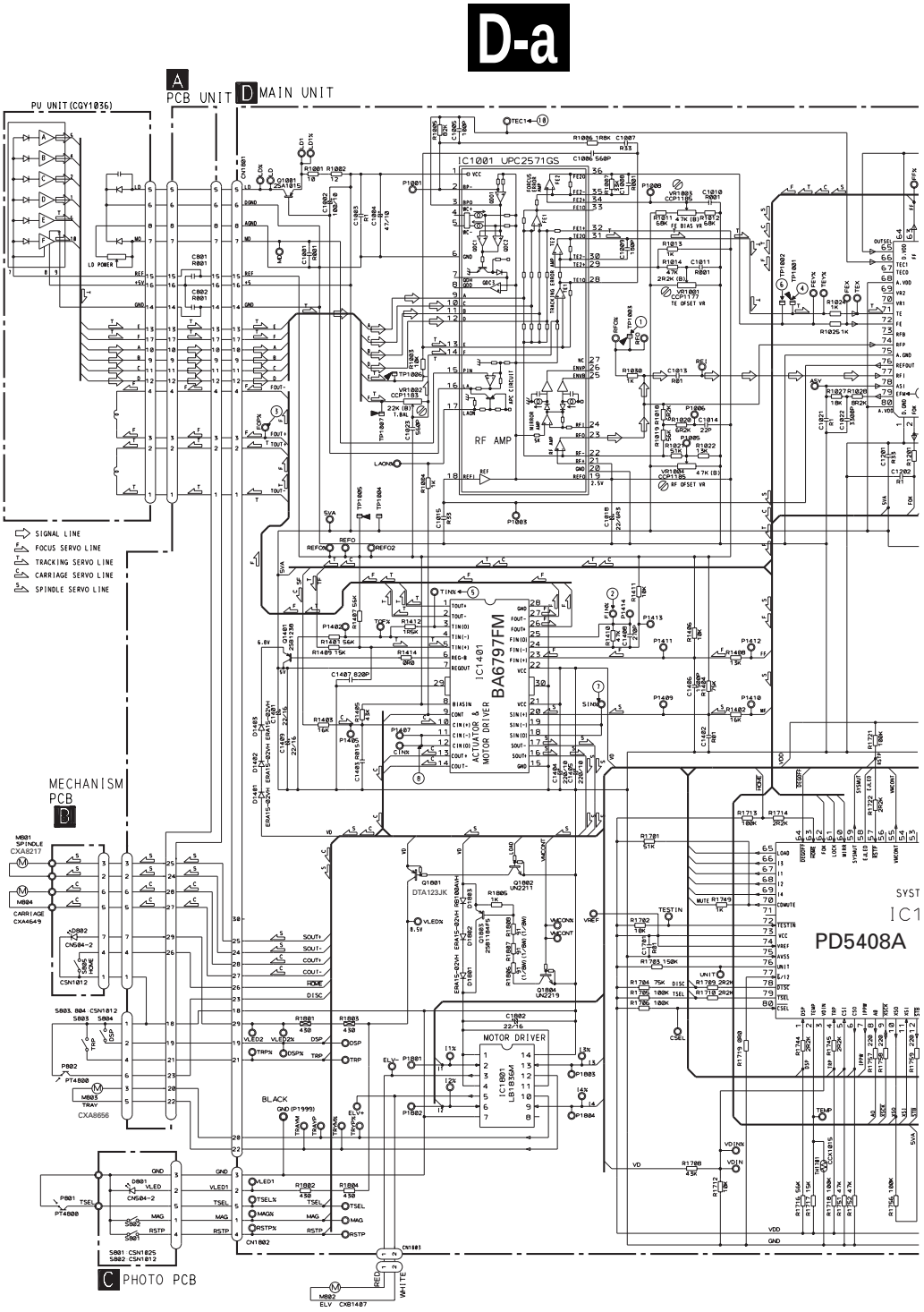
Mark No.	Description	Part No.
141	Screw	JFZ17P025FNI
142	Screw	JFZ20P025FNI
143	Photo-transistor	PT4800
144	Spring	CBH1741
145	Screw	JFZ20P014FMC
146	Washer	CBF1002
147	Screw	CBA1340
148	Spring	CBL1254
149	Spring	CBL1229
150	Arm	CNC6488
151	Spring	CBL1230
152	Holder	CNV4440
153	Guide	CNV4524
154	Spring	CBL1203
155	Washer	YE25FUC
156	•••••	
157	Bracket	CNC6016
158	Screw	JFZ20P020FZK
159	Cushion	CNM4495
160	Arm	CNV4292
161	Gear	CNV4299
162	Bracket Unit	CXA8396
163	Spring	CBL1226
164	Sheet	CNM4552
165	Spring	CBL1253
166	Spring	CBH1778
167	Holder	CNV4290
168	Bracket	CNC6097
169	Screw	CBA1037
170	Guide	CNV4296
171	Connector	CDE4968
172	Shaft	CLA3328
173	Screw	BMZ26P030FZK
174	Washer	CBF1037
175	•••••	
176	Spring	CBL1250
177	Spring	CBH1783
178	Lever Unit	CXA8392
179	Sheet	CNM4071
180	•••••	
181	Gear	CNV4675
182	Spring	CBH1989
183	Spring	CBH1988
184	Spring	CBH1847
185	Spring	CBL1216
186	Cushion	CNM5403

3. SCHEMATIC DIAGRAM

3.1 OVERALL CONNECTION DIAGRAM(GUIDE PAGE)

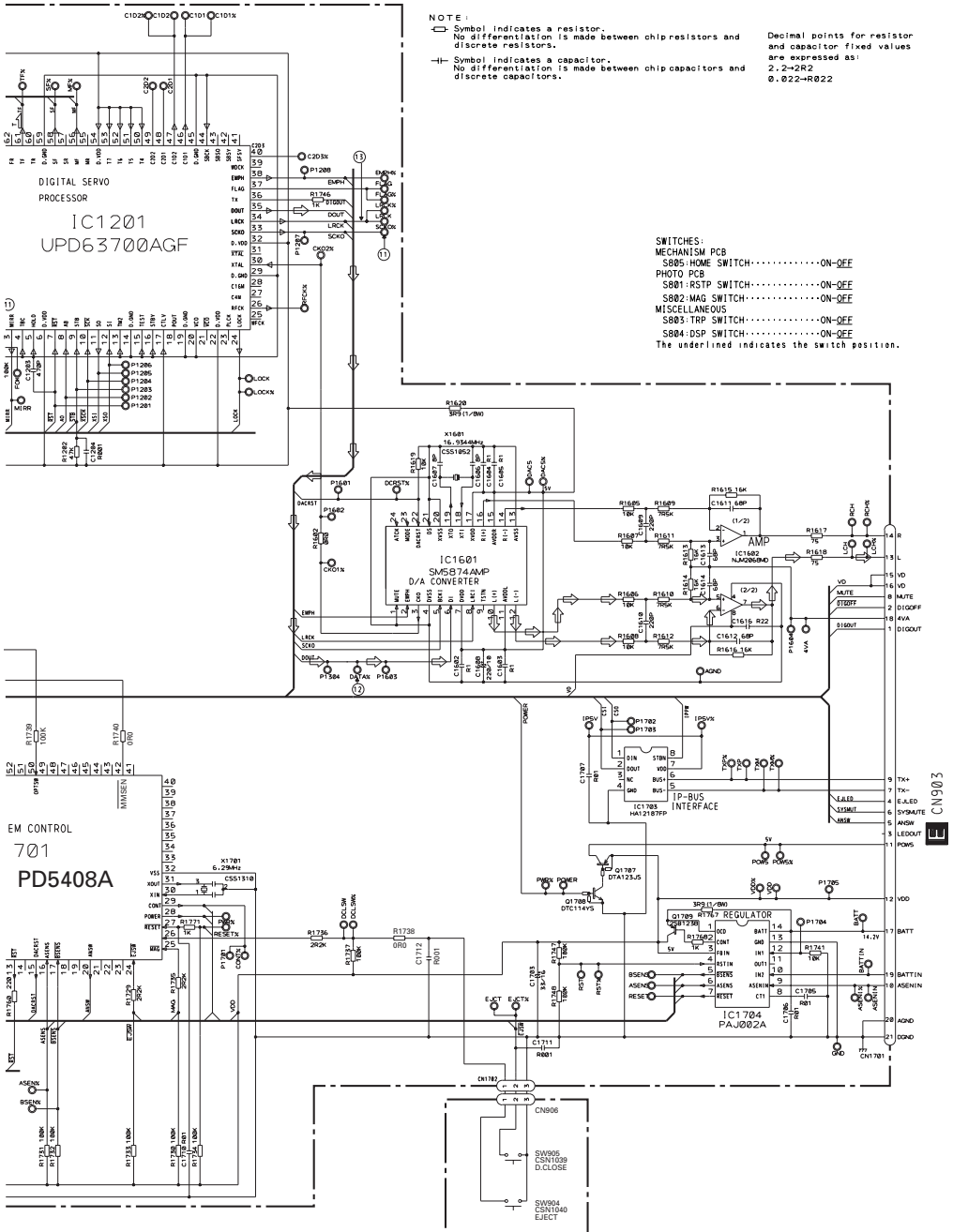
Note: When ordering service parts,be sure to refer to "EXPLODED VIEWS AND PARTS LIST"or"ELECTRICAL PARTS LIST".





A B C D

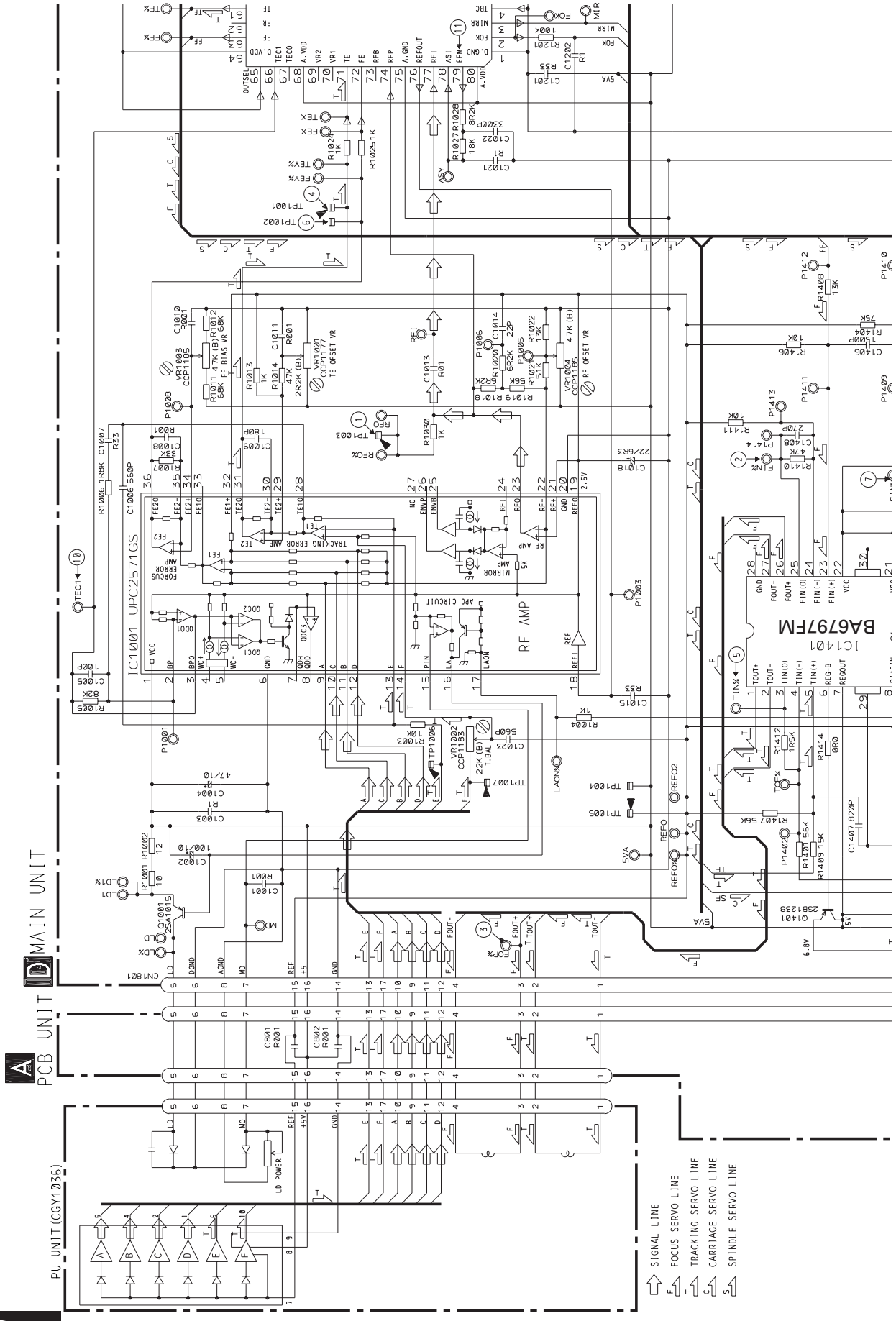
D-b



F GRILLE UNIT

Fig. 5

D-a D-b


MAIN UNIT
PCB UNIT
PU UNIT (CGY1036)
IC1001 UPC2571GS
RF AMP
IC1401 BA6797FM
SIGNAL LINE
FOCUS SERVO LINE
TRACKING SERVO LINE
CARRIAGE SERVO LINE
SPINDLE SERVO LINE

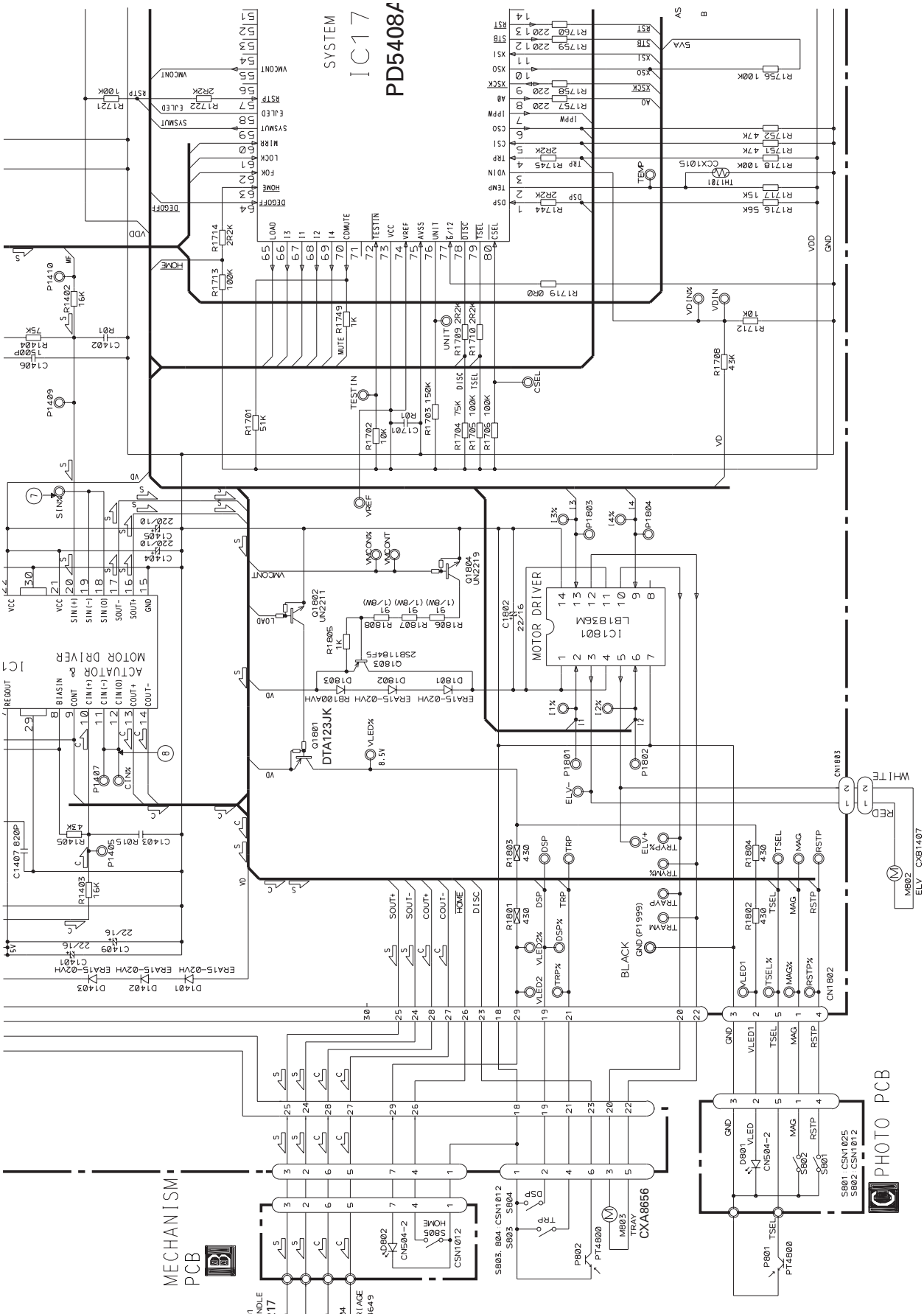

SYSTEM
IC17
PD5408A
MOTOR DRIVER
IC1801
LB1836M
ACTUATOR & MOTOR DRIVER
IC1
DTA123JK
Q1801
Q1802
UN2211
Q1804
UN2219
2SB1184FS
Q1803
ERA15-02VH
R1806
R1807
R1808
R1805
MECHANISM PCB
CXA8656
CXA8217
CARRIAGE CXA4649
PHOTO PCB
CN504-2
PT4800
TRAY
SPINDLE
BLACK
WHITE
RED
ELV
CXB1407
CN1802
CN1803
P1801
P1802
P1803
P1804
P1407
P1408
P1409
P1410
VDD
GND
VD
VREF
TESTIN
CSEL
UNIT
DISC
TSEL
LOAD
MUTE
HOME
DSP
TRP
TRV
TRAV
TSEL
MAG
RSTP
VLED
VLED1
VLED2
SOUT+
SOUT-
COUT+
COUT-
CIN+
CIN-
CIN0
SIN+
SIN-
SIN0
VCONT
VMCONT
REGOUT
BIASIN
CONT
SOUT+
SOUT-
COUT+
COUT-
M801
M802
M803
M804
S801
S802
S803
S804
S805
D801
D802
CSN1012
CSN1025
TH1701
CCX1015

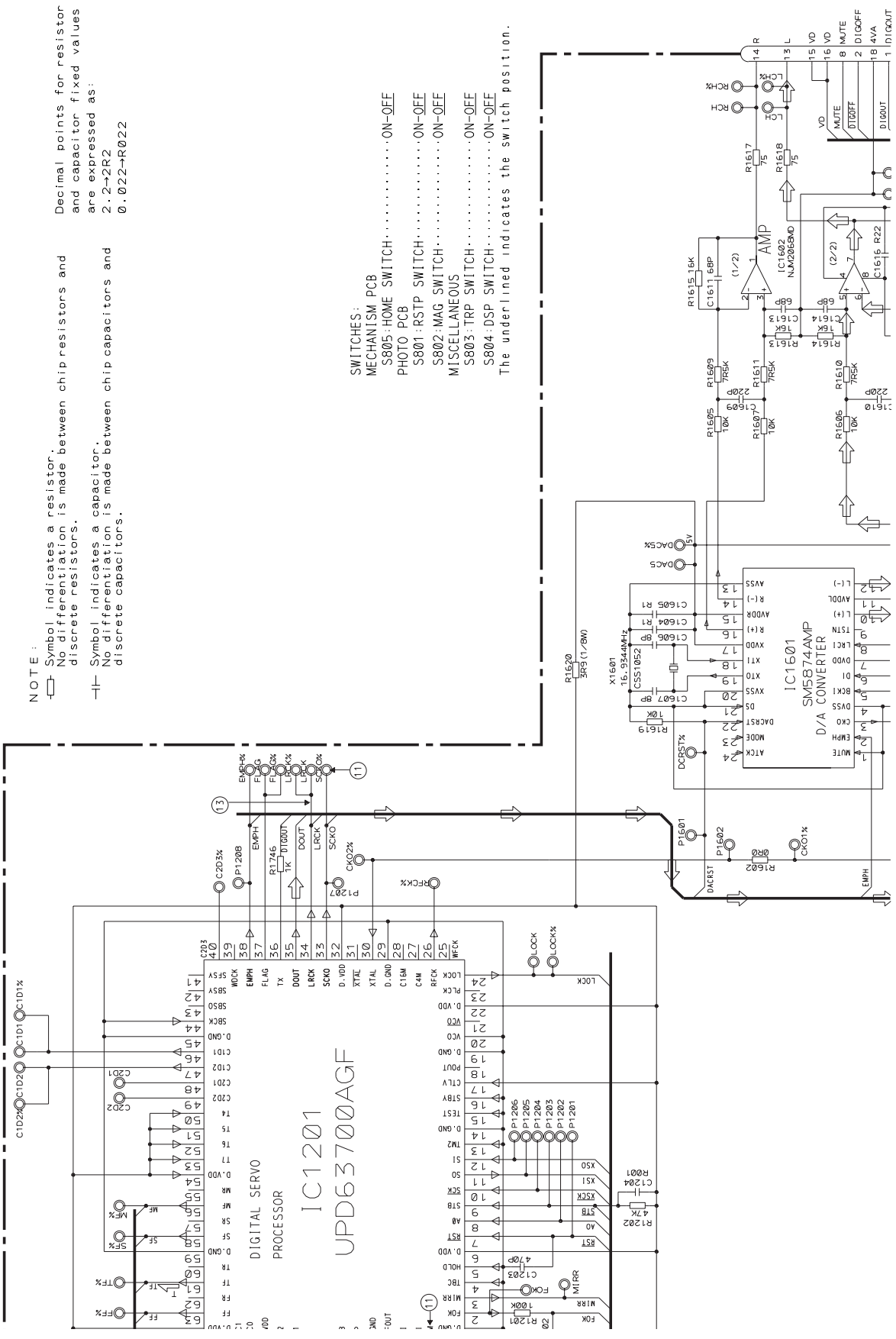
Fig. 6

D-a D-b

NOTE:
- Symbol indicates a resistor. No differentiation is made between chip resistors and discrete resistors.
- Symbol indicates a capacitor. No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022

SWITCHES:
MECHANISM PCB
S805:HOME SWITCH·····ON-OFF
PHOTO PCB
S801:RSTP SWITCH·····ON-OFF
S802:MAG SWITCH·····ON-OFF
MISCELLANEOUS
S803:TRP SWITCH·····ON-OFF
S804:DSP SWITCH·····ON-OFF
The underlined indicates the switch position.



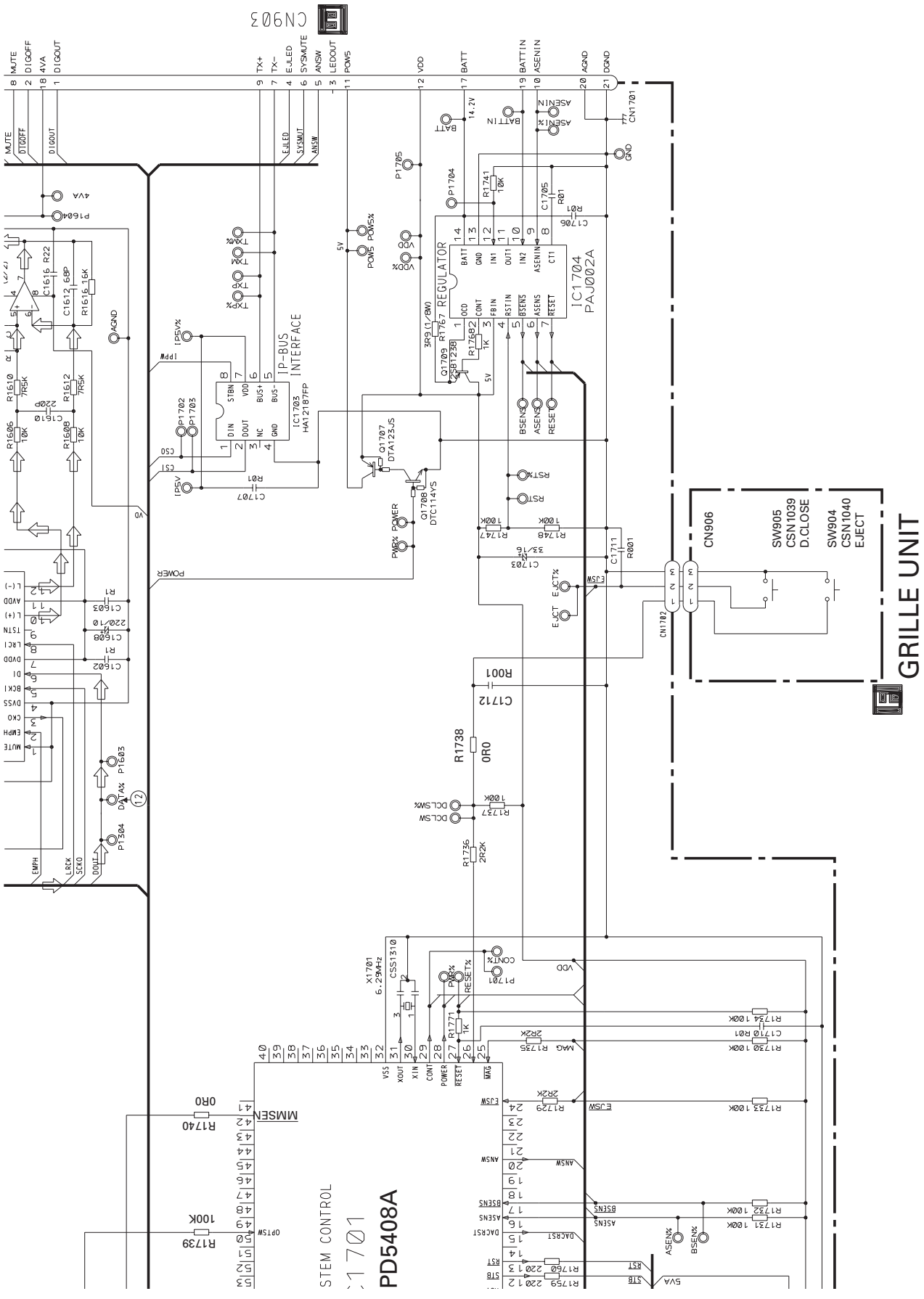
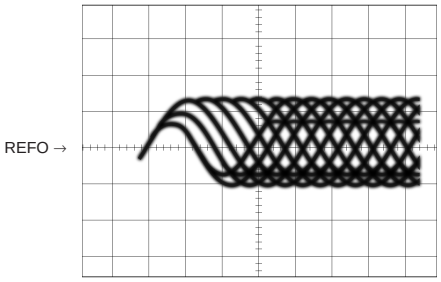

CN903
MUTE
DIGOFF
4VA
DIGOUT
TX+
TX-
E.JLED
SYSMUTE
ANSW
LEDOUT
POWS
VDD
BATT
BATTIN
ASENIN
AGND
DGND
CN1701
GND
IC1704
PAJ002A
REGULATOR
IP-BUS
INTERFACE
IC1703
HA12187FP
Q1707
DTA123JS
Q1708
DTC114YS
Q1709
2SB1238
POWER
RESET
BSENS
ASENS
CN906
SW905
CSN1039
D.CLOSE
SW904
CSN1040
EJECT
GRILLE UNIT
CN1702
R1738
0R0
C1712
R001
X1701
6.23MHz
CSS1310
PD5408A
STEM CONTROL
MMSEN
R1740
0R0
R1739
100K
OPTSW

Fig. 7

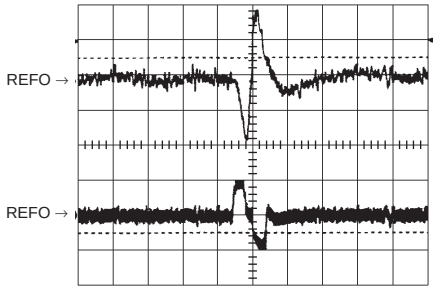
Note:1. The encircled numbers denote measuring pointes in the circuit diagram.
2. Reference voltage
REFO:2.5V

● Waveforms

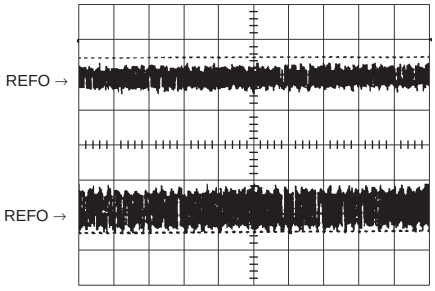
① RFO 0.5V/div. 0.5µs/div.
Normal mode: play



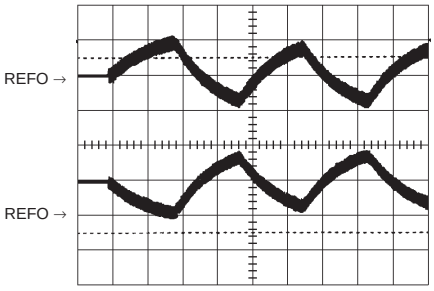
④ CH1: TEY 0.5V/div. 0.5ms/div.
⑤ CH2: TIN 1V/div.
Test mode: Single jump (FWD)



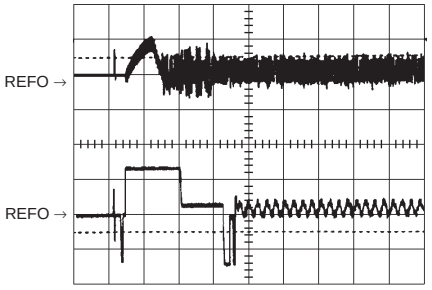
④ CH1: TEY 0.5V/div. 20ms/div.
⑤ CH2: TIN 0.5V/div.
Normal mode: Play



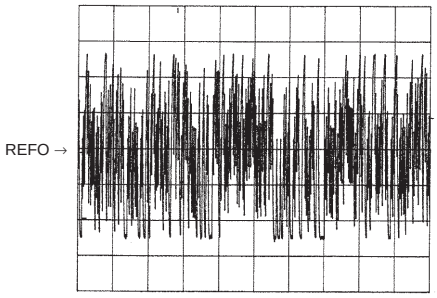
② CH1: FIN 1V/div. 0.2s/div.
③ CH2: FO+ 2V/div.
Test mode: No disc, Focus close



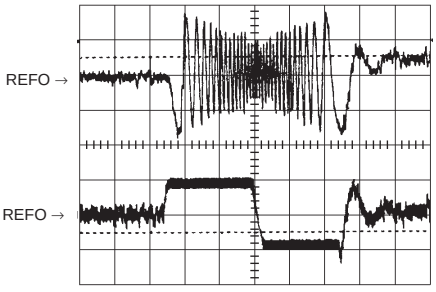
② CH1: FIN 1V/div. 0.5s/div.
⑦ CH2: SIN 1V/div.
Normal mode: Focus close (12cm)



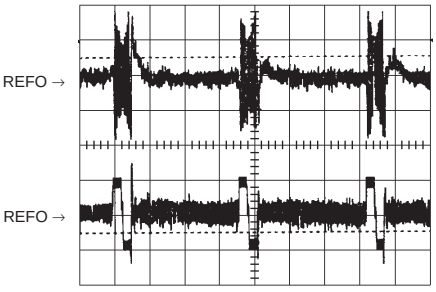
⑦ SIN 0.5V/div. 10ms/div.
Search (12cm disc)



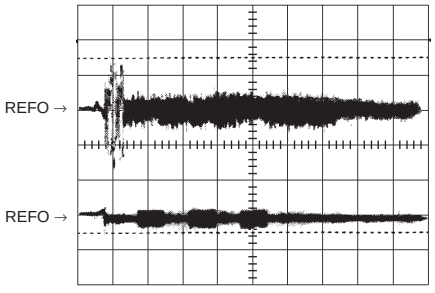
④ CH1: TEY 0.5V/div. 0.5ms/div.
⑤ CH2: TIN 1V/div.
Test mode: 32 track jump (FWD)



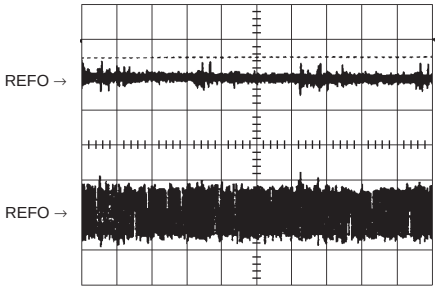
④ CH1: TEY 0.5V/div. 5ms/div.
⑤ CH2: TIN 1V/div.
Test mode: 100 track jump (FWD)



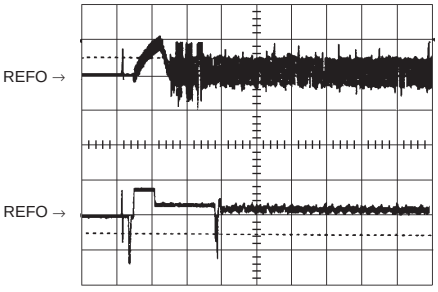
④ CH1: TEY 0.5V/div. 0.1s/div.
⑥ CH2: FEY 0.5V/div.
Normal mode: AGC after focus close



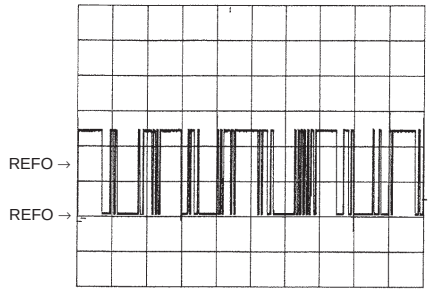
⑥ CH1: FEY 0.2V/div. 20ms/div.
② CH2: FIN 0.5V/div.
Normal mode: Play



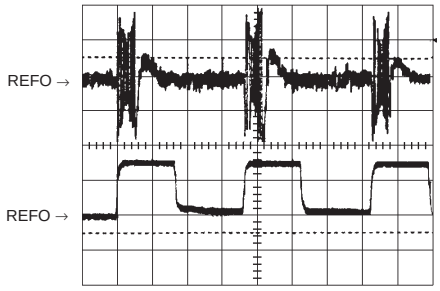
② CH1: FIN 1V/div. 0.5s/div.
⑦ CH2: SIN 1V/div.
Normal mode: Focus close (8cm)



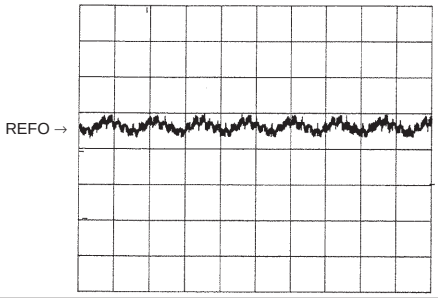
⑫ DATA 2V/div. 10µs/div.
Play



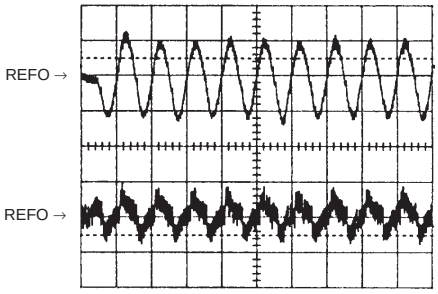
④ CH1: TEY 0.5V/div.
⑧ CH2: CIN 0.5V/div.
5ms/div.
Test mode: 100 track jump (FWD)



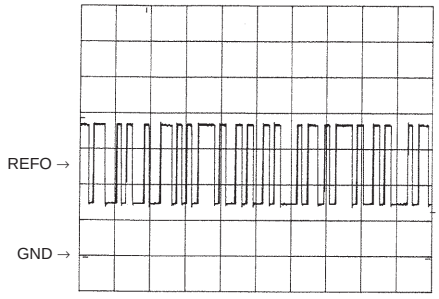
⑦ SIN 0.5V/div. 0.1s/div.
Normal mode: 1Play (12cm disc)



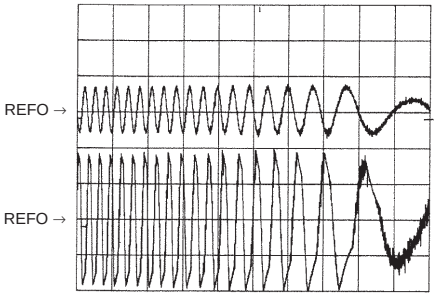
⑥ CH1: FEY 0.2V/div.
② CH2: FIN 1V/div.
1ms/div.
Normal mode: During AGC



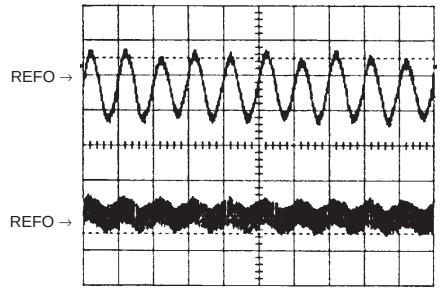
⑨ EFM 1V/div. 5µs/div.
Play



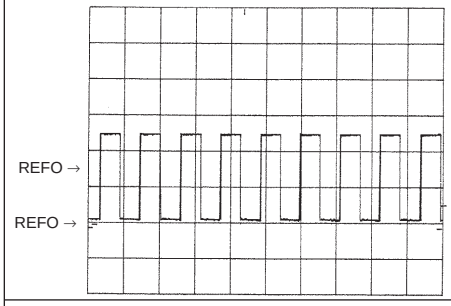
④ CH1: TEY 1V/div.
⑩ CH2: TEC 1V/div.
2ms/div.
Test mode: Focus close
Tracking open



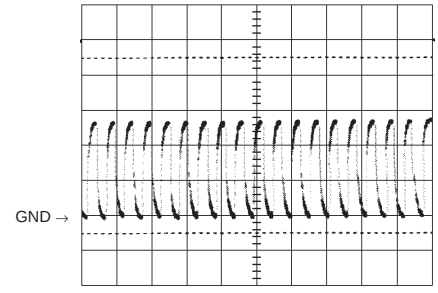
④ CH1: TEY 0.5V/div.
⑤ CH2: TIN 0.5V/div.
1ms/div.
Normal mode: During AGC



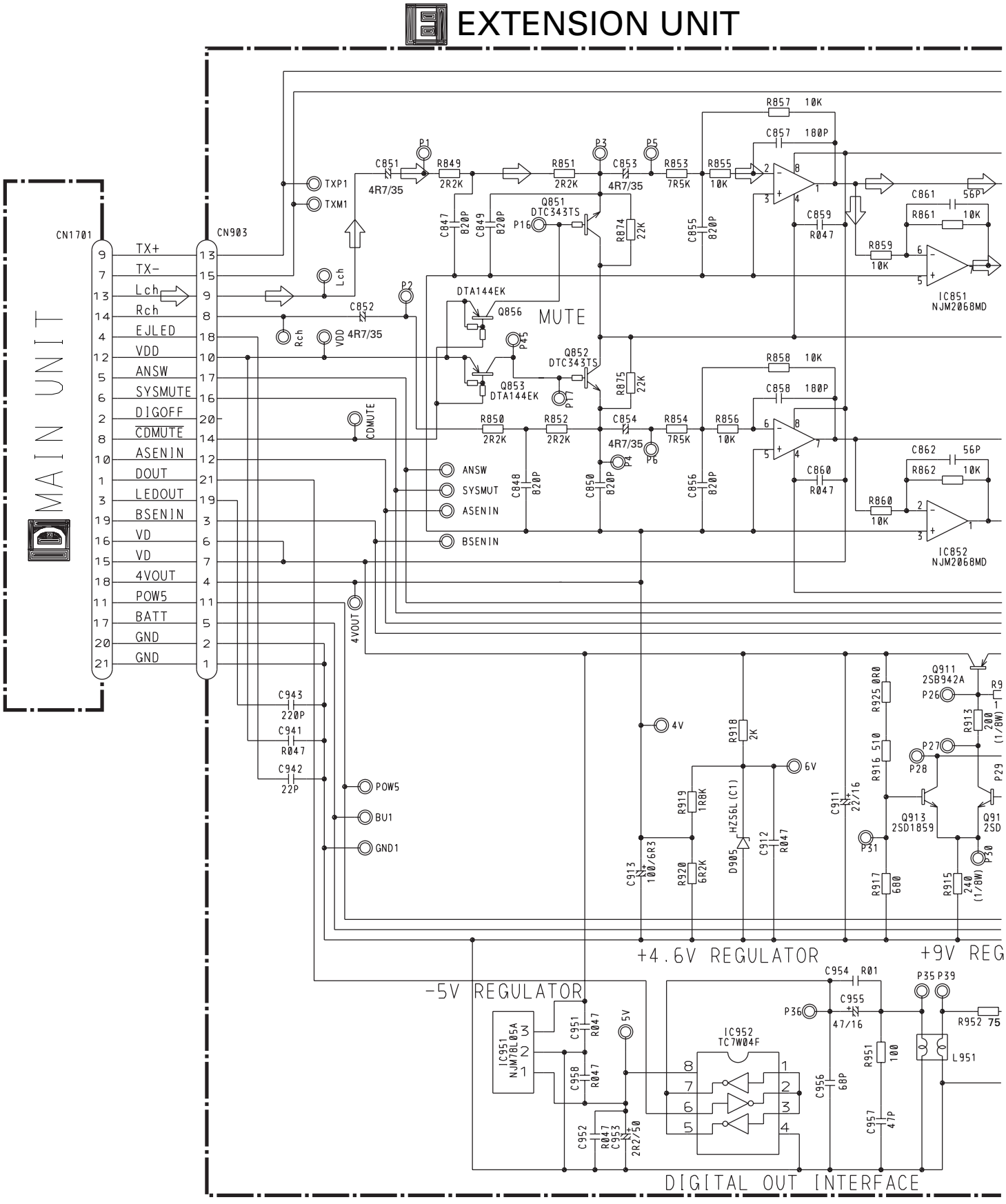
⑬ LRCK 2V/div. 20µs/div.
Play



⑪ SCKO 2V/div. 1µs/div.
Play



3.2 EXTENSION UNIT



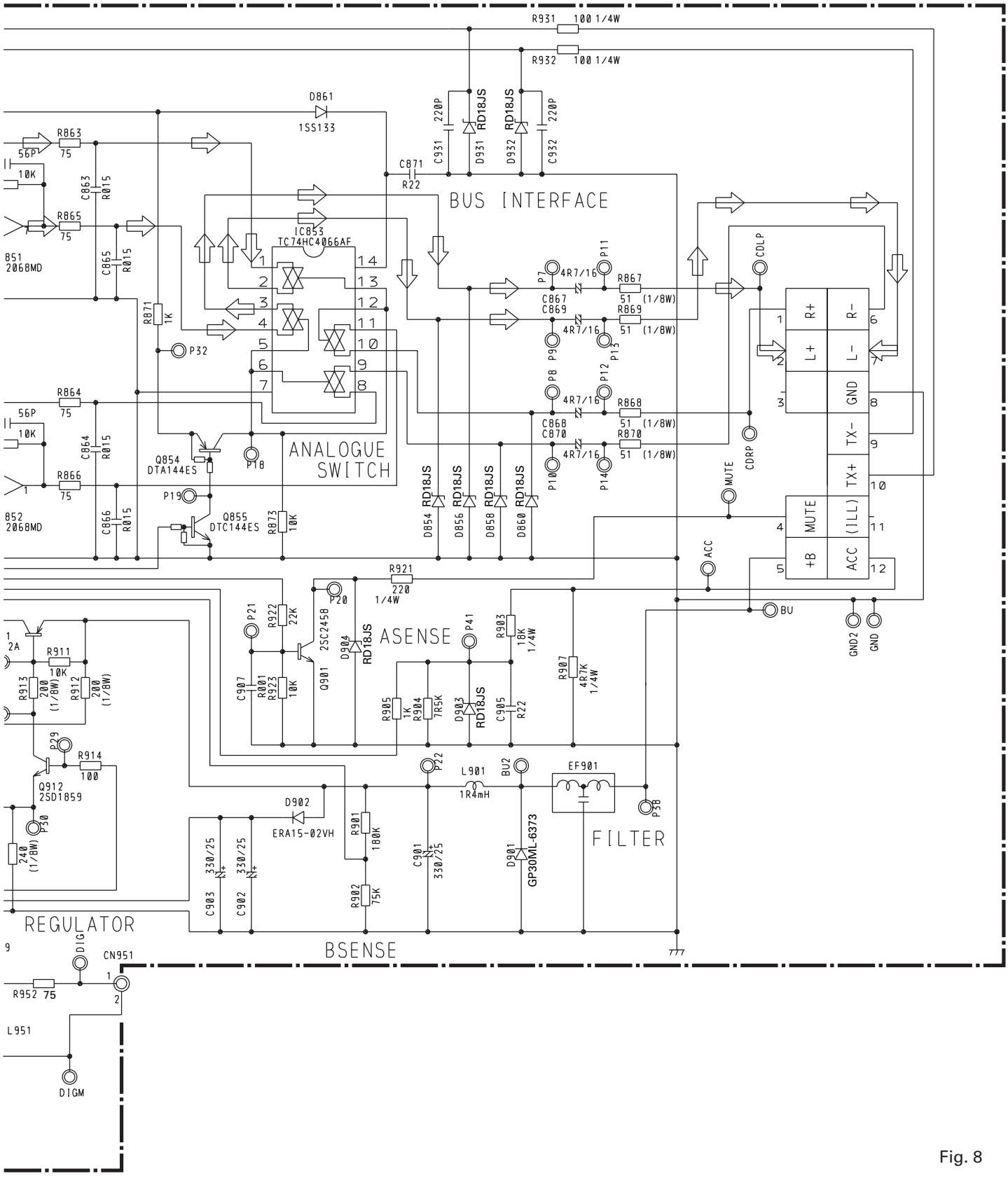

BUS INTERFACE
ANALOGUE SWITCH
ASENSE
FILTER
REGULATOR
BSENSE
IC853
TC74HC4066AF
D861
1SS133
R931 100 1/4W
R932 100 1/4W
C871
R22
R863
R865
R864
R866
R871 1K
P32
Q854
DTA144ES
Q855
DTC144ES
R873 10K
R867
R868
R869
R870
C867
C868
C869
C870
4R7/16
51 (1/8W)
P7
P8
P9
P10
P11
P12
P13
P14
CDLP
CDRP
MUTE
ACC
BU
GND2
GND
R+
R-
L+
L-
GND
TX-
TX+
MUTE
(ILL)
+B
ACC
R921 220 1/4W
P20
P21
R922 22K
2SC2458
Q901
D904 RD18JS
R911 10K
R913 200 (1/8W)
R912 200 (1/8W)
C907
R001
R923 10K
R905 1K
R904 7R5K
D903 RD18JS
C905
R22
R903 18K 1/4W
R907 4R7K 1/4W
P41
P29
R914 100
Q912
2SD1859
P30
240 (1/8W)
D902
ERA15-02VH
R901 180K
R902 75K
C903 330/25
C902 330/25
C901 330/25
P22
L901
1R4mH
BU2
D901
GP30ML-6373
EF901
P58
D854 RD18JS
D856 RD18JS
D858 RD18JS
D860 RD18JS
C931 220P
D931 RD18JS
D932 RD18JS
C932 220P
R863 75
56P
10K
C863
R015
R865 75
C865
R015
851
2068MD
R864 75
56P
10K
C864
R015
R866 75
C866
R015
852
2068MD
CN951
DIG
R952 75
L951
DIGM

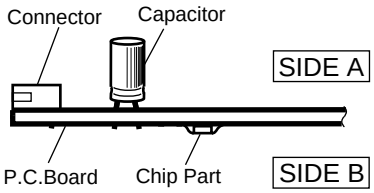
Fig. 8

4. PCB CONNECTION DIAGRAM

4.1 MAIN UNIT

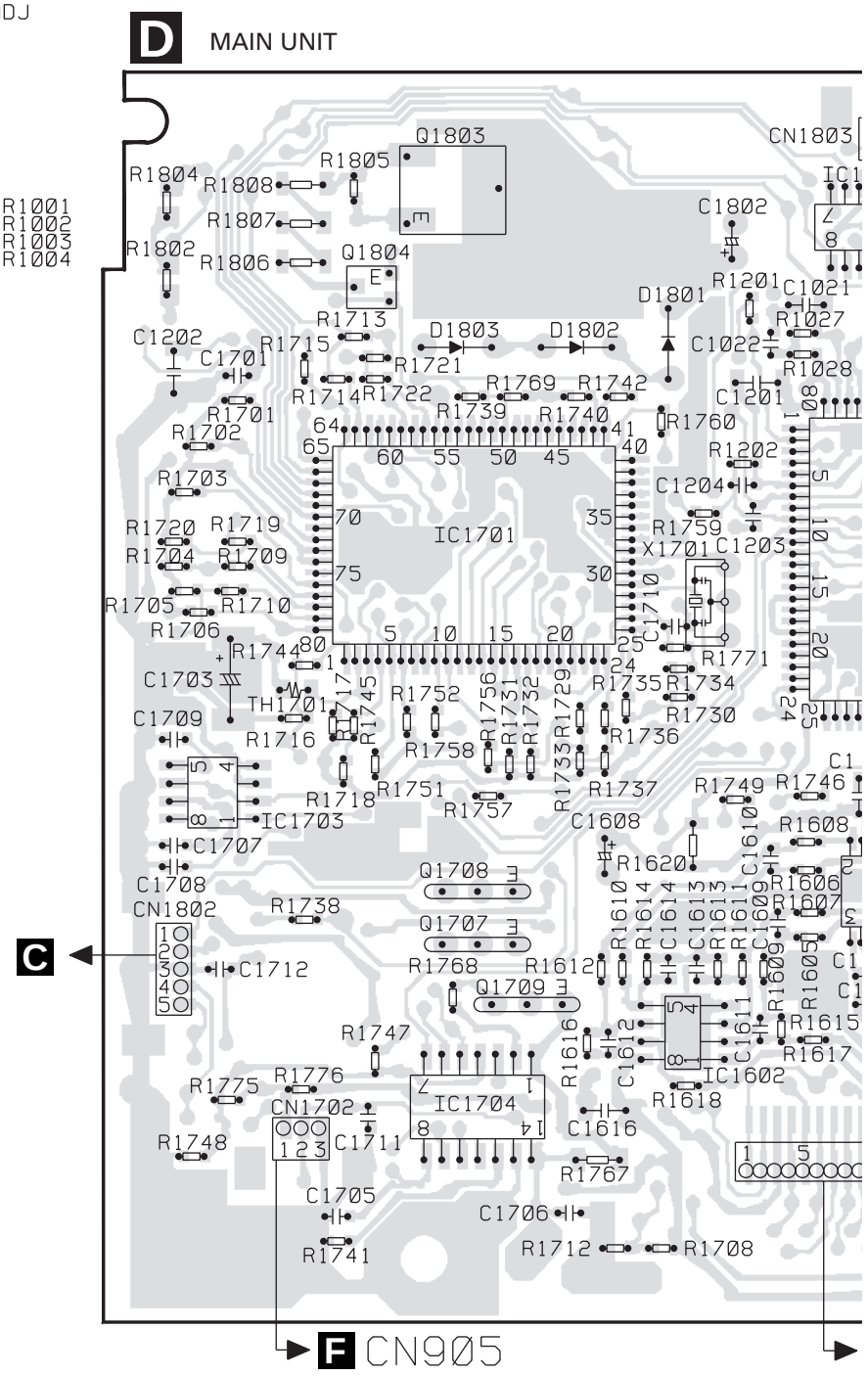
NOTE FOR PCB DIAGRAMS

1. The parts mounted on this PCB include all necessary parts for several destination.
   For further information for respective destinations, be sure to check with the schematic diagram.
2. Viewpoint of PCB diagrams



IC, Q
Q1803
IC1801
Q1802
Q1804
Q1801
IC1001
IC1201
IC1701
Q1001
IC1703
Q1708
IC1601
Q1707
IC1401
Q1709
IC1602
IC1704
Q1401

ADJ
VR1001
VR1002
VR1003
VR1004



SIDE A

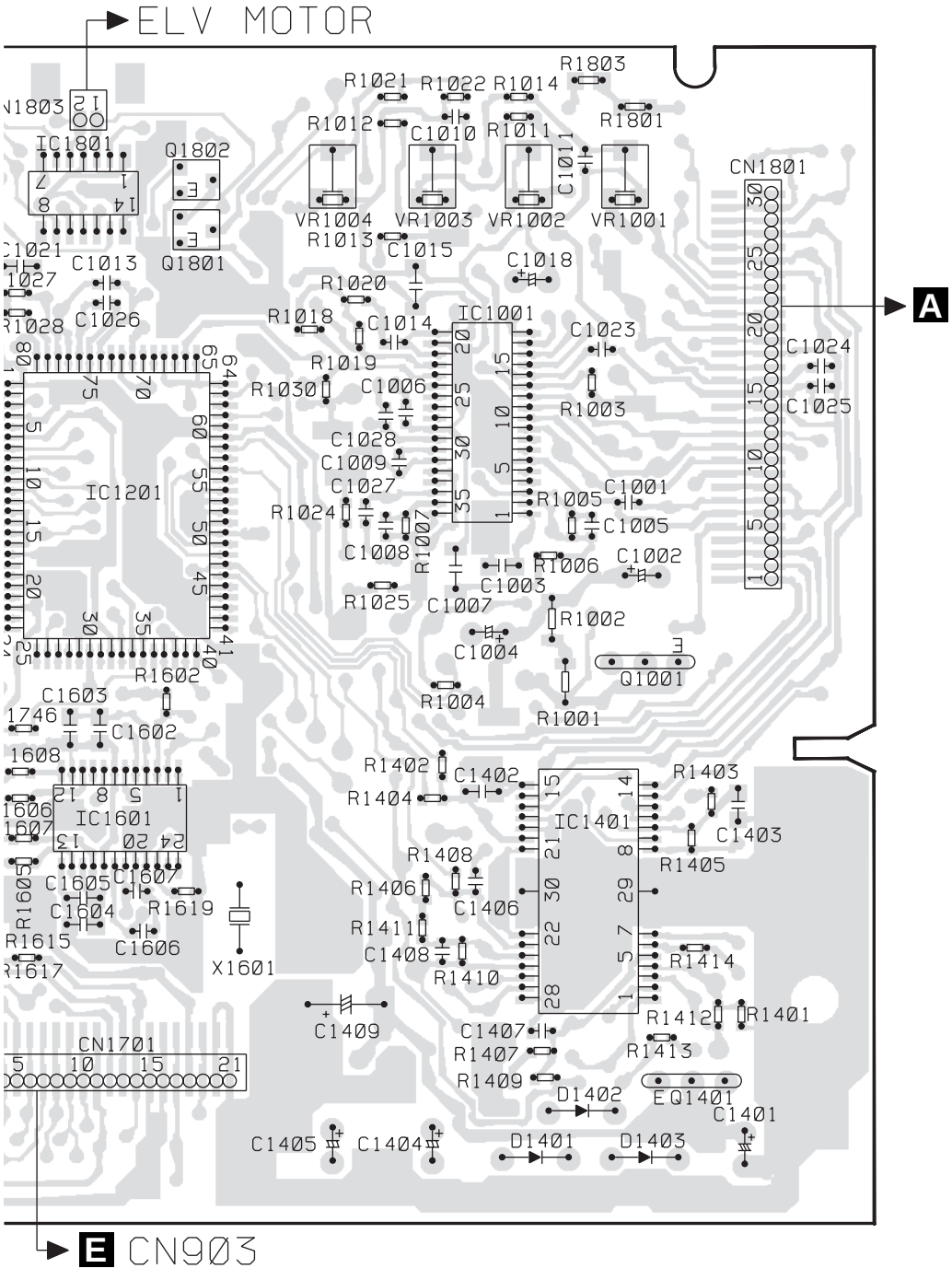
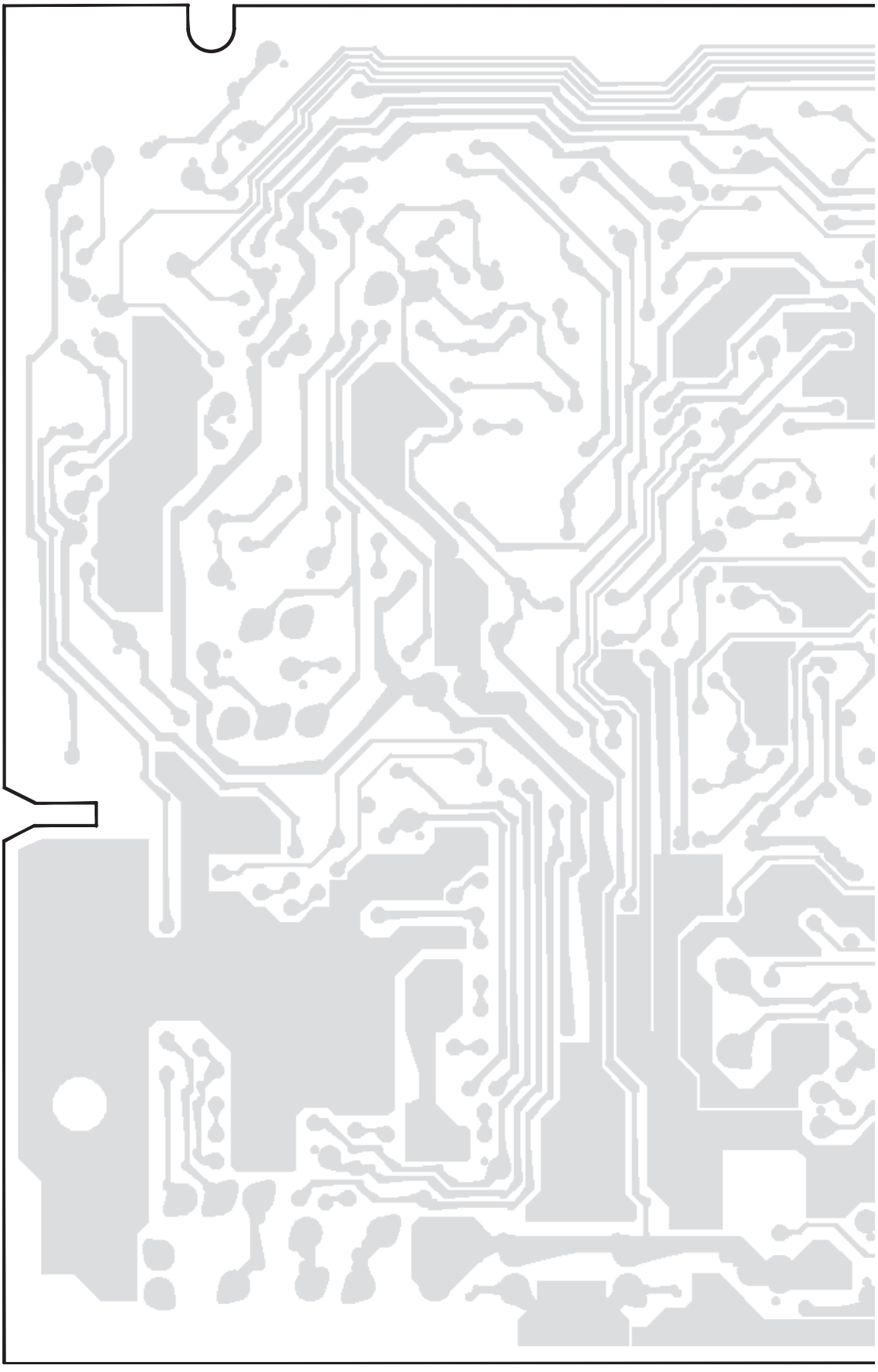
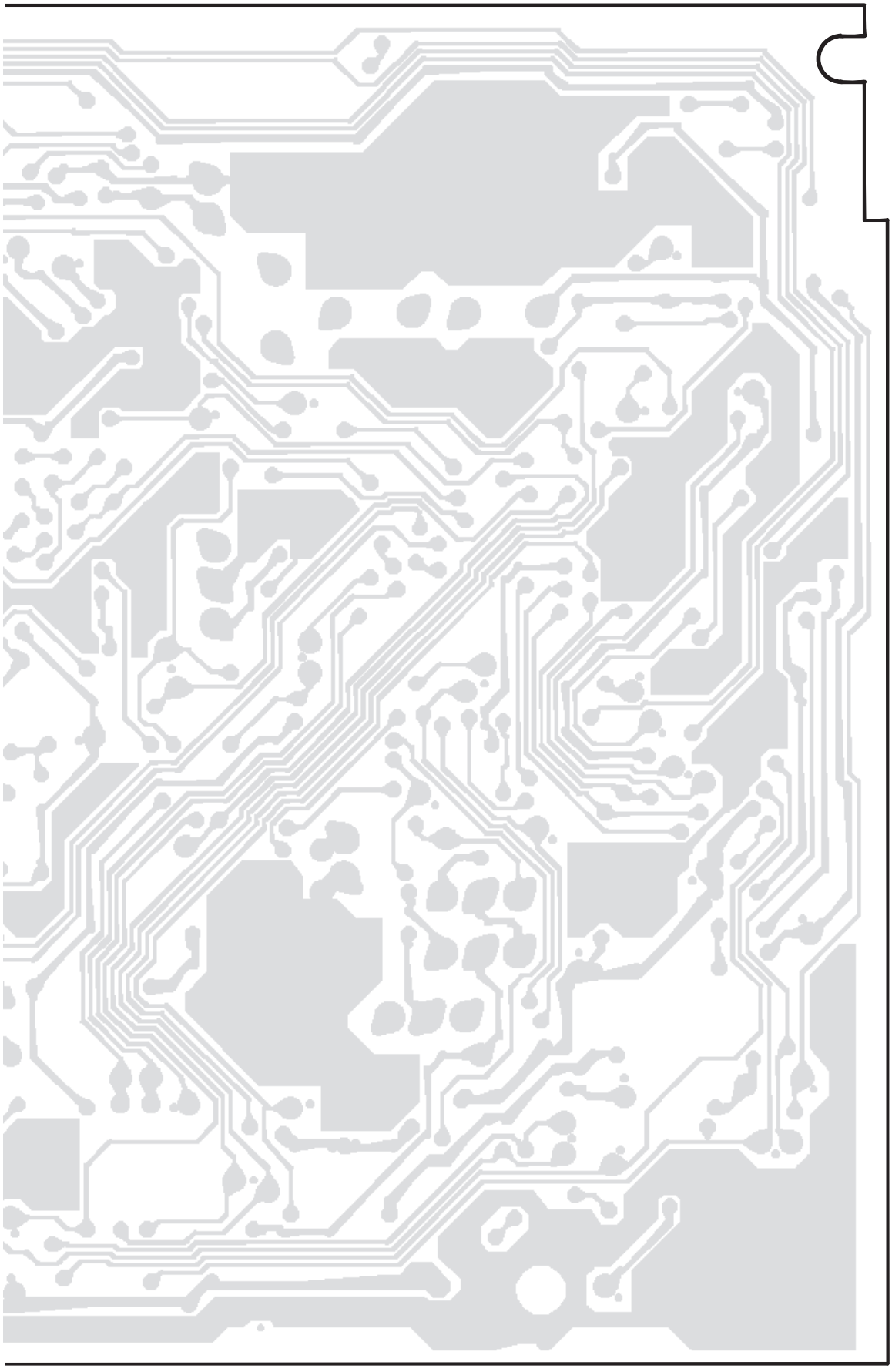

ELV MOTOR
A
E CN903
IC1801
Q1802
Q1801
IC1201
IC1001
IC1401
IC1601
CN1801
CN1701
X1601
Q1001
EQ1401
D1402
D1401
D1403

Fig. 9

D MAIN UNIT



SIDE B



A

B

C

D

Fig. 10

4.2 EXTENSION UNIT

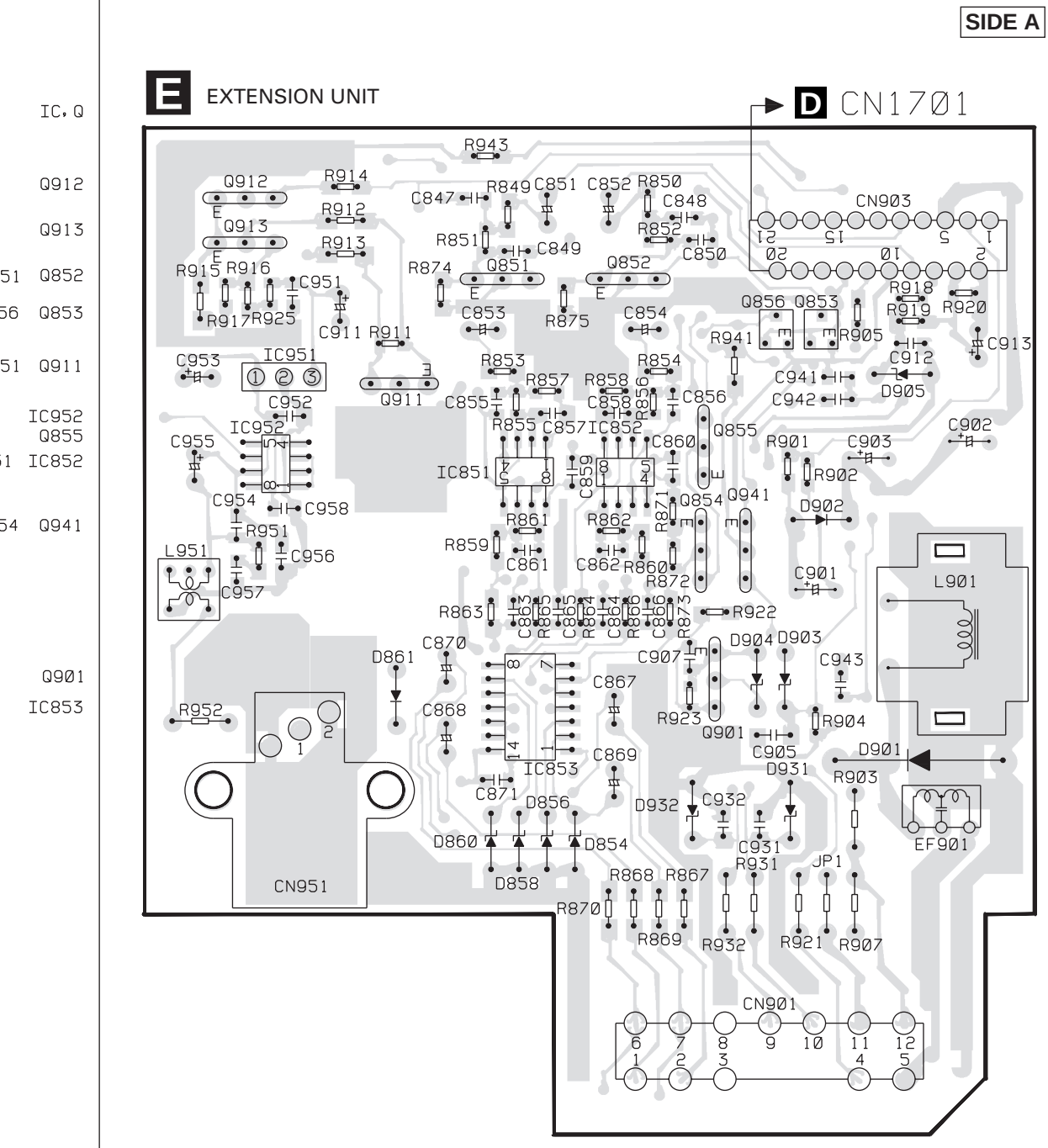


Fig. 11

SIDE B

E EXTENSION UNIT

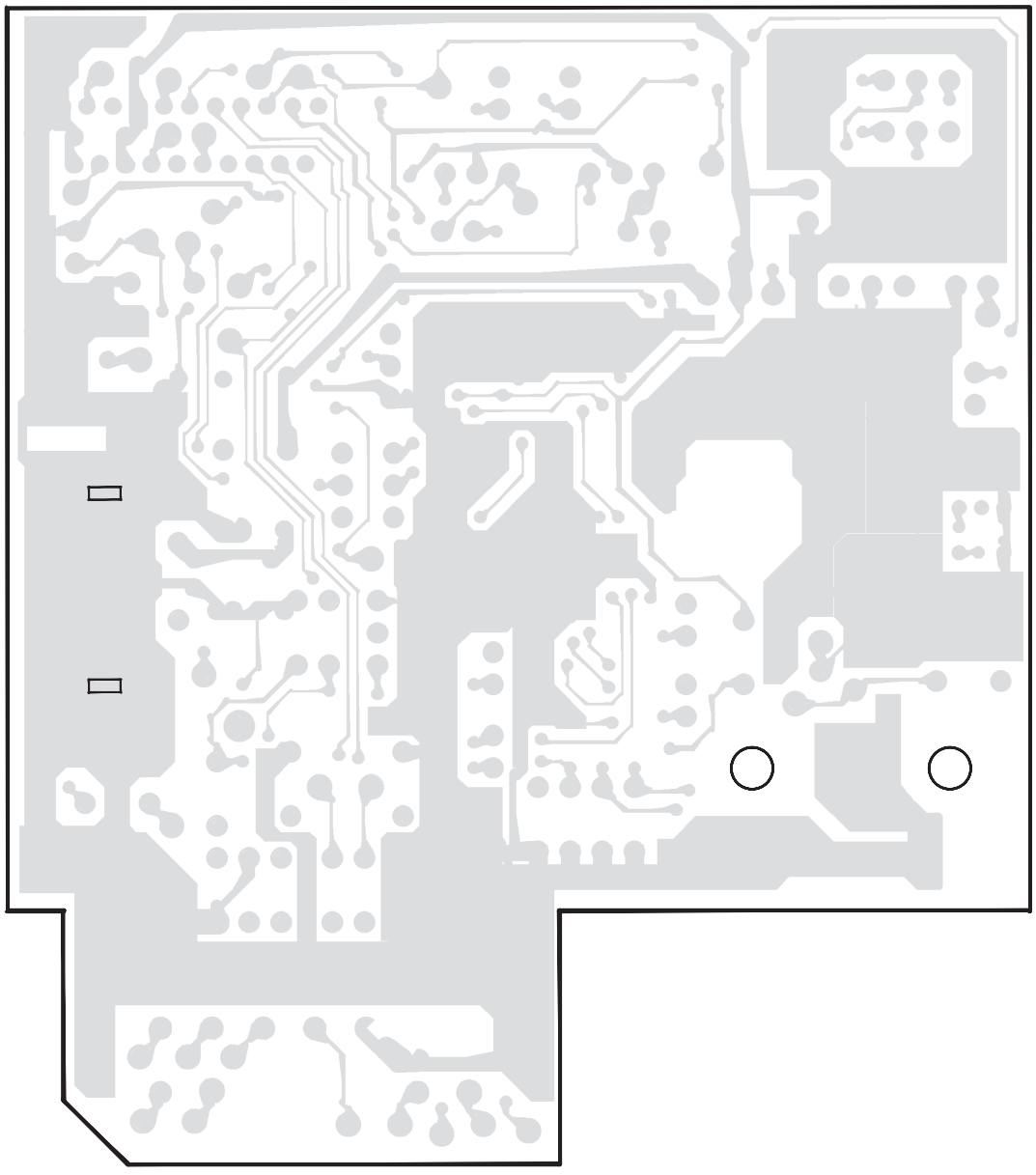


Fig. 12

4.3 GRILLE UNIT,PHOTO PCB

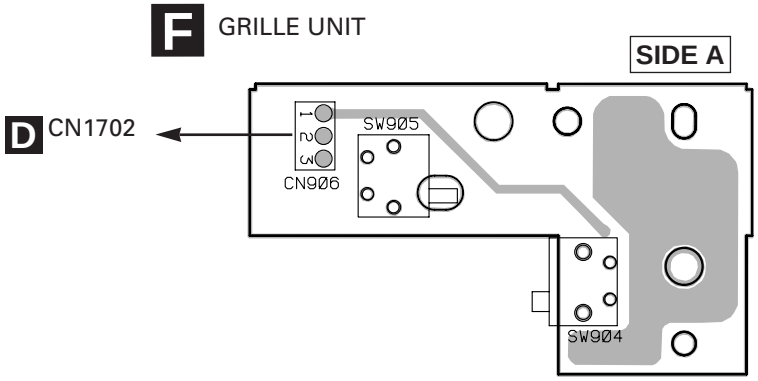


Fig. 13

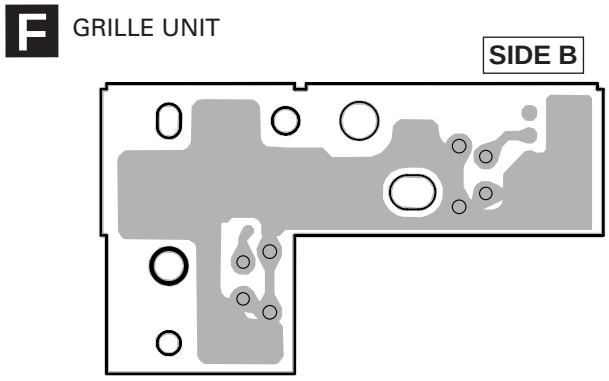


Fig. 14

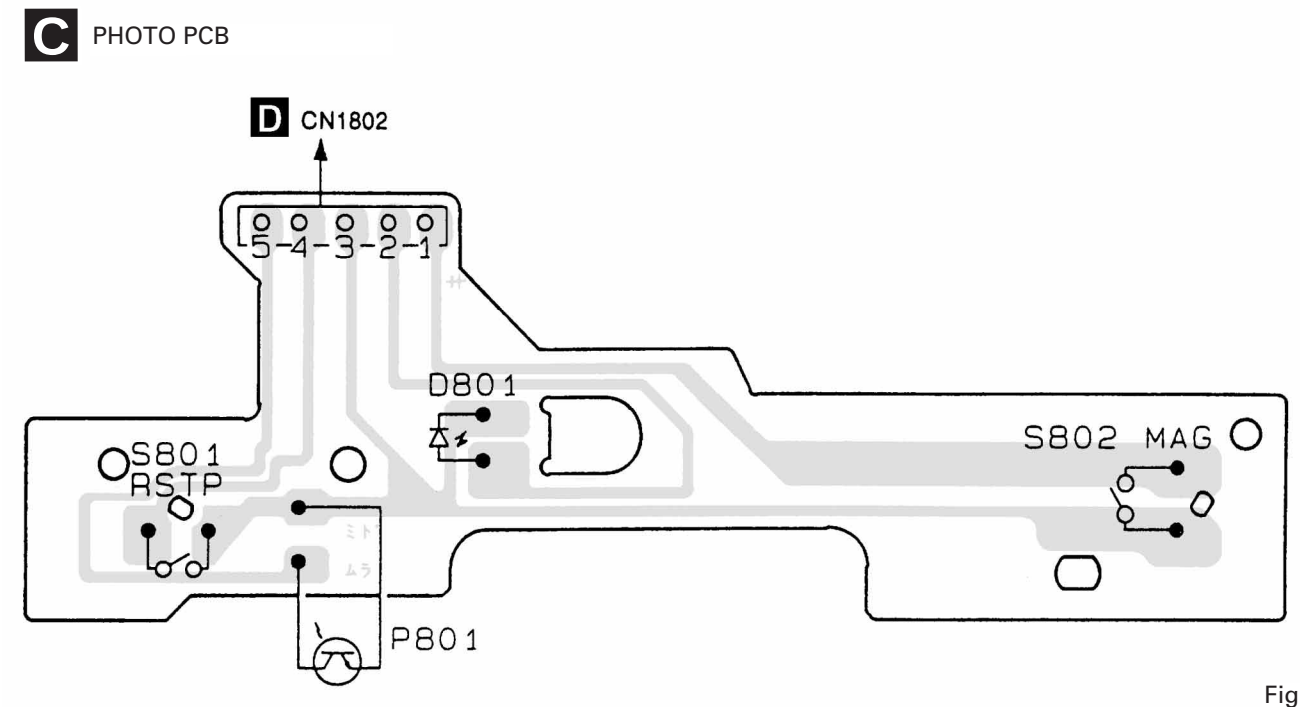


Fig. 15

4.4 PCB UNIT,MECHANISM PCB

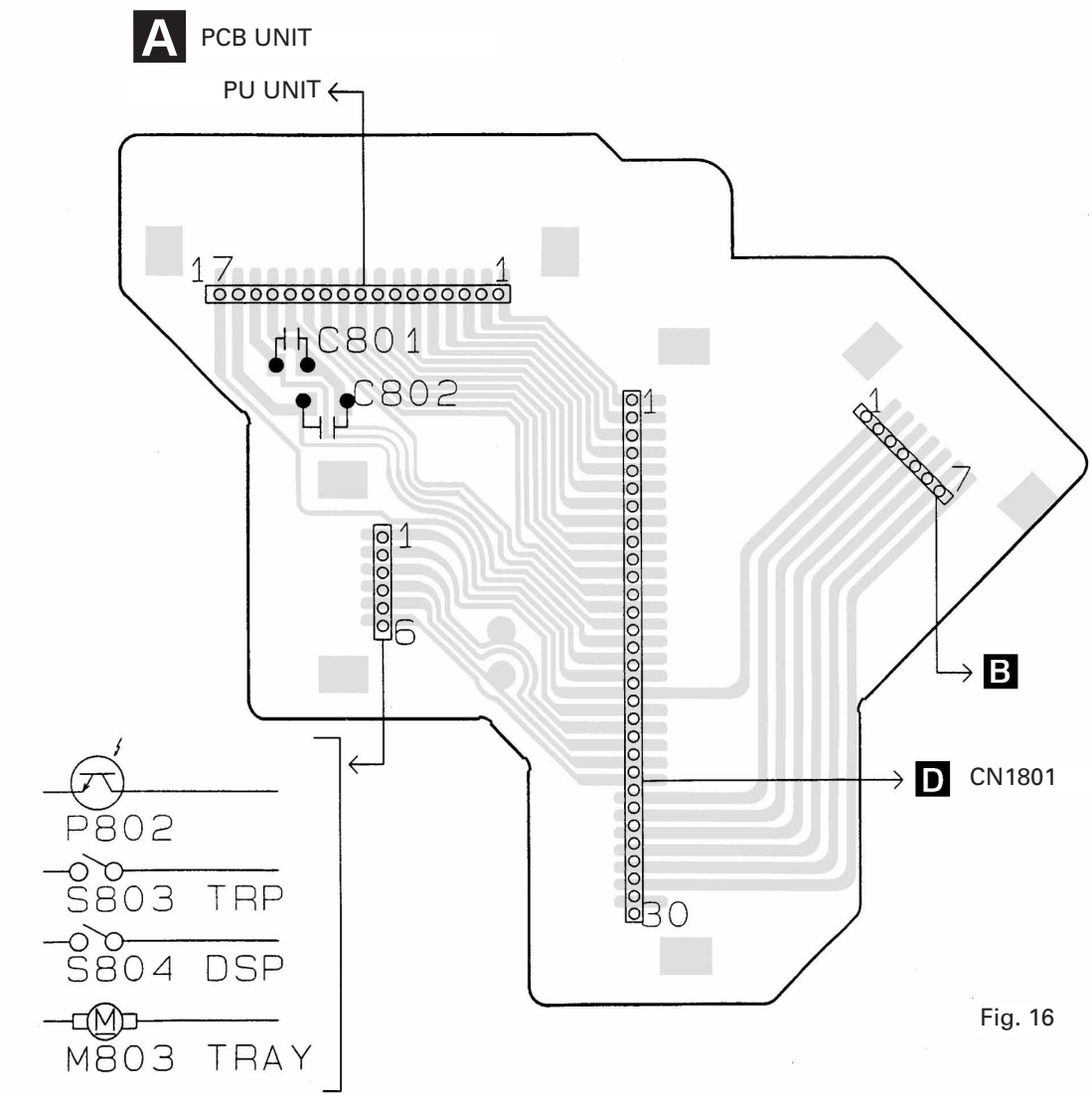


Fig. 16

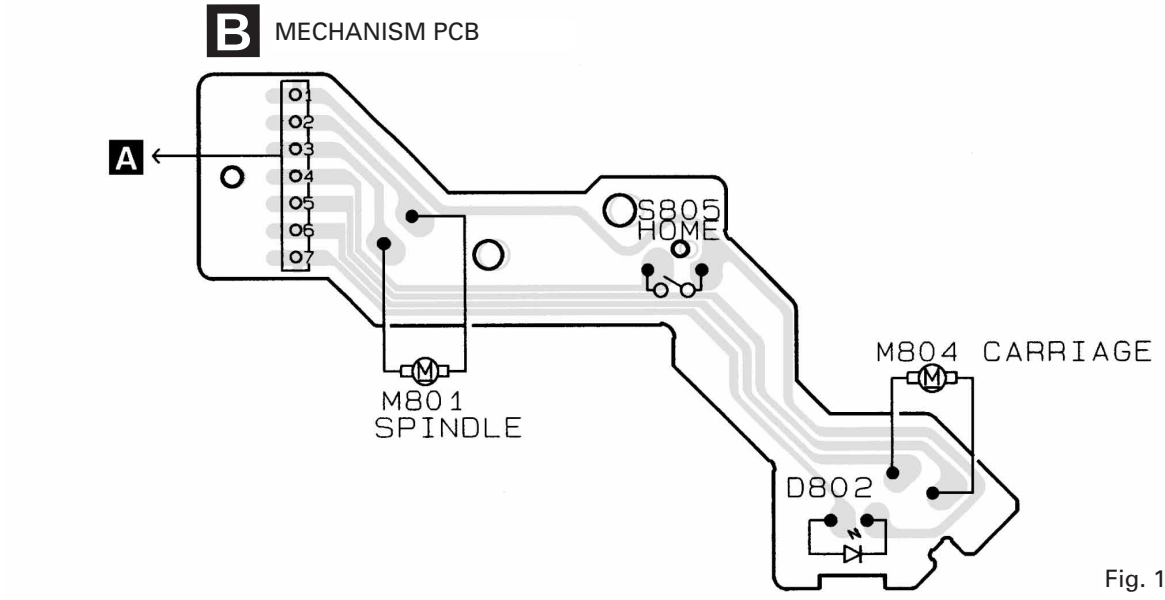


Fig. 17

5. ELECTRICAL PARTS LIST

NOTE:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/○S○○○J,RS1/○○S○○○J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

E Unit Number : CWX2126
Unit Name : Extension Unit

MISCELLANEOUS

=====Circuit Symbol and No.		===Part Name	Part No.
IC	851	IC	NJM2068MD
IC	852	IC	NJM2068MD
IC	853	IC	TC74HC4066AF
IC	951	IC	NJM78L05A
IC	952	IC	TC7W04F
Q	851	Transistor	DTC343TS
Q	852	Transistor	DTC343TS
Q	853	Transistor	DTA144EK
Q	854	Transistor	DTA144ES
Q	855	Transistor	DTC144ES
Q	856	Transistor	DTA144EK
Q	901	Transistor	2SC2458
Q	911	Transistor	2SB942A
Q	912	Transistor	2SD1859
Q	913	Transistor	2SD1859
D	854	Diode	RD18JS
D	856	Diode	RD18JS
D	858	Diode	RD18JS
D	860	Diode	RD18JS
D	861	Diode	1SS133
D	901	Diode	GP30ML-6373
D	902	Diode	ERA15-02VH
D	903	Diode	RD18JS
D	904	Diode	RD18JS
D	905	Diode	HZS6L(C1)
D	931	Diode	RD18JS
D	932	Diode	RD18JS
L	901	Choke Coil 1.4mH	CTH1129
L	951	Transformer	CTC1075
EF	901	EMI Filter	CCG1006

RESISTORS

R	849		RS1/10S222J
R	850		RS1/10S222J
R	851		RS1/10S222J
R	852		RS1/10S222J
R	853		RS1/10S752J
R	854		RS1/10S752J
R	855		RS1/10S103J
R	856		RS1/10S103J
R	857		RS1/10S103J
R	858		RS1/10S103J
R	859		RS1/10S103J
R	860		RS1/10S103J
R	861		RS1/10S103J
R	862		RS1/10S103J
R	863		RS1/10S750J
R	864		RS1/10S750J
R	865		RS1/10S750J
R	866		RS1/10S750J
R	867		RS1/8S510J
R	868		RS1/8S510J
R	869		RS1/8S510J
R	870		RS1/8S510J
R	871		RS1/10S102J
R	873		RS1/10S103J
R	874		RS1/10S223J
R	875		RS1/10S223J
R	901		RS1/10S184J
R	902		RN1/10SE7502D
R	903		RD1/4PU183J
R	904		RN1/10SE7501D
R	905		RS1/10S102J
R	907		RD1/4PU472J
R	911		RS1/10S103J
R	912		RS1/8S201J
R	913		RS1/8S201J
R	914		RS1/10S101J
R	915		RS1/8S241J
R	916		RN1/10SE5100D
R	917		RN1/10SE6800D
R	918		RS1/10S202J
R	919		RS1/10S182J
R	920		RS1/10S622J
R	921		RD1/4PU221J
R	922		RS1/10S223J
R	923		RS1/10S103J
R	925		RS1/10S0R0J
R	931		RD1/4PU101J
R	932		RD1/4PU101J
R	951		RS1/10S101J
R	952		RD1/4PU750J

CAPACITORS

C	847		CCSQCH821J50
C	848		CCSQCH821J50
C	849		CCSQCH821J50
C	850		CCSQCH821J50
C	851		CEJA4R7M35
C	852		CEJA4R7M35
C	853		CEJA4R7M35
C	854		CEJA4R7M35
C	855		CCSQCH821J50
C	856		CCSQCH821J50
C	857		CCSQCH181J50
C	858		CCSQCH181J50
C	859		CKSQYB473K50
C	860		CKSQYB473K50
C	861		CCSQCH560J50
C	862		CCSQCH560J50
C	863		CKSQYB153K50
C	864		CKSQYB153K50
C	865		CKSQYB153K50
C	866		CKSQYB153K50
C	867		CEJANP4R7M16
C	868		CEJANP4R7M16
C	869		CEJANP4R7M16
C	870		CEJANP4R7M16
C	871		CKSQYB224K16

=====Circuit Symbol and No.	Part Name	Part No.
C 901	330µF/25V	CCH1281
C 902	330µF/25V	CCH1281
C 903	330µF/25V	CCH1281
C 905		CKSYB224K25
C 907		CKSQYB102K50
C 911		CEHAR220M16
C 912		CKSQYB473K50
C 913		CEJA101M6R3
C 931		CCSQCH221J50
C 932		CCSQCH221J50
C 941		CKSQYB473K50
C 942		CCSQCH220J50
C 943		CCSQCH221J50
C 951		CKSQYB473K50
C 952		CKSQYB473K50
C 953		CEJA2R2M50
C 954		CKSQYB103K50
C 955		CEJA470M16
C 956		CCSQCH680J50
C 957		CCSQCH470J50
C 958		CKSQYB473K50

D Unit Number : CWX2123
Unit Name : Main Unit

MISCELLANEOUS

IC 1001	IC	UPC2571GS
IC 1201	IC	UPD63700AGF
IC 1401	IC	BA6797FM
IC 1601	IC	SM5874AMP
IC 1602	IC	NJM2068MD
IC 1701	IC	PD5408A
IC 1703	IC	HA12187FP
IC 1704	IC	PAJ002A
IC 1801	IC	LB1836M
Q 1001	Transistor	2SA1015
Q 1401	Transistor	2SB1238
Q 1707	Transistor	DTA123JS
Q 1708	Transistor	DTC114YS
Q 1709	Transistor	2SB1238
Q 1801	Transistor	DTA123JK
Q 1802	Transistor	UN2211
Q 1803	Transistor	2SB1184F5
Q 1804	Transistor	UN2219
D 1401	Diode	ERA15-02VH
D 1402	Diode	ERA15-02VH
D 1403	Diode	ERA15-02VH
D 1801	Diode	ERA15-02VH
D 1802	Diode	ERA15-02VH
D 1803	Diode	RB100AVH
TH 1701	Thermistor	CCX1015
X 1601	Crystal Resonator 16.9344MHz	CSS1052
X 1701	Ceramic Resonator 6.29MHz	CSS1310
VR 1001	Semi-fixed 2.2kΩ(B)	CCP1177
VR 1002	Semi-fixed 22kΩ(B)	CCP1183
VR 1003	Semi-fixed 47kΩ(B)	CCP1185
VR 1004	Semi-fixed 47kΩ(B)	CCP1185
TP 1001	Checker Chip(TEY)	CKF1031
TP 1002	Checker Chip(FEY)	CKF1031
TP 1003	Checker Chip(RFO)	CKF1031
TP 1004	Checker Chip(5VA)	CKF1031
TP 1005	Checker Chip(REFO)	CKF1031
TP 1006	Checker Chip(E)	CKF1031
TP 1007	Checker Chip(F)	CKF1031

=====Circuit Symbol and No.	Part Name	Part No.
RESISTORS		
R 1001		RS1/8S100J
R 1002		RS1/8S120J
R 1003		RS1/16S103J
R 1004		RS1/16S102J
R 1005		RS1/16S823J
R 1006		RS1/16S182J
R 1007		RS1/16S333J
R 1011		RS1/16S683J
R 1012		RS1/16S683J
R 1013		RS1/16S102J
R 1014		RS1/16S473J
R 1018		RS1/16S622J
R 1019		RS1/16S563J
R 1020		RS1/16S622J
R 1021		RS1/16S513J
R 1022		RS1/16S133J
R 1024		RS1/16S102J
R 1025		RS1/16S102J
R 1027		RS1/16S183J
R 1028		RS1/16S822J
R 1030		RS1/16S102J
R 1201		RS1/16S104J
R 1202		RS1/16S473J
R 1401		RS1/16S563J
R 1402		RS1/16S163J
R 1403		RS1/16S163J
R 1404		RS1/16S753J
R 1405		RS1/16S433J
R 1406		RS1/16S103J
R 1407		RS1/16S563J
R 1408		RS1/16S133J
R 1409		RS1/16S153J
R 1410		RS1/16S473J
R 1411		RS1/16S103J
R 1412		RS1/16S152J
R 1414		RS1/16S0R0J
R 1602		RS1/16S0R0J
R 1605		RS1/16S103J
R 1606		RS1/16S103J
R 1607		RS1/16S103J
R 1608		RS1/16S103J
R 1609		RS1/16S752J
R 1610		RS1/16S752J
R 1611		RS1/16S752J
R 1612		RS1/16S752J
R 1613		RS1/16S163J
R 1614		RS1/16S163J
R 1615		RS1/16S163J
R 1616		RS1/16S163J
R 1617		RS1/16S750J
R 1618		RS1/16S750J
R 1619		RS1/16S103J
R 1620		RS1/8S3R9J
R 1701		RS1/16S513J
R 1702		RS1/16S103J
R 1703		RS1/16S154J
R 1704		RS1/16S753J
R 1705		RS1/16S104J
R 1706		RS1/16S104J
R 1708		RS1/16S433J
R 1709		RS1/16S222J
R 1710		RS1/16S222J
R 1712		RS1/16S103J
R 1713		RS1/16S104J
R 1714		RS1/16S222J

=====Circuit Symbol and No.	Part Name	Part No.
R 1716		RS1/16S563J
R 1717		RS1/16S153J
R 1718		RS1/16S104J
R 1719		RS1/16S0R0J
R 1721		RS1/16S104J
R 1722		RS1/16S222J
R 1729		RS1/16S222J
R 1730		RS1/16S104J
R 1731		RS1/16S104J
R 1732		RS1/16S104J
R 1733		RS1/16S104J
R 1734		RS1/16S104J
R 1735		RS1/16S222J
R 1736		RS1/16S222J
R 1737		RS1/16S104J
R 1738		RS1/16S0R0J
R 1739		RS1/16S104J
R 1740		RS1/16S0R0J
R 1741		RS1/16S103J
R 1744		RS1/16S222J
R 1745		RS1/16S222J
R 1746		RS1/16S102J
R 1747		RS1/16S104J
R 1748		RS1/16S104J
R 1749		RS1/16S102J
R 1751		RS1/16S473J
R 1752		RS1/16S473J
R 1756		RS1/16S104J
R 1757		RS1/16S221J
R 1758		RS1/16S221J
R 1759		RS1/16S221J
R 1760		RS1/16S221J
R 1767		RS1/8S3R9J
R 1768		RS1/16S102J
R 1771		RS1/16S102J
R 1801		RS1/10S431J
R 1802		RS1/10S431J
R 1803		RS1/10S431J
R 1804		RS1/10S431J
R 1805		RS1/16S102J
R 1806		RS1/8S910J
R 1807		RS1/8S910J
R 1808		RS1/8S910J
CAPACITORS		
C 1001		CKSRYB102K50
C 1002		CEAS101M10
C 1003		CKSQYB104K16
C 1004		CEAS470M10
C 1005		CCSRCH101J50
C 1006		CKSRYB561K50
C 1007		CKSYB334K16
C 1008		CKSRYB102K50
C 1009		CCSRCH181J50
C 1010		CKSRYB102K50
C 1011		CKSRYB102K50
C 1013		CKSRYB103K25
C 1014		CCSRCH220J50
C 1015		CKSYB334K16
C 1018		CEJA220M6R3
C 1021		CKSQYB104K16
C 1022		CKSRYB332K50
C 1023		CKSRYB561K50
C 1201		CKSYB334K16
C 1202		CKSYB104K16
C 1203		CKSRYB471K50
C 1204		CKSRYB102K50
C 1401		CSZA220M16
C 1402		CKSQYB103K50
C 1403		CKSQYB153K50

=====Circuit Symbol and No.	Part Name	Part No.
C 1404		CEAS221M10
C 1405		CEAS221M10
C 1406		CKSRYB152K50
C 1407		CKSRYB821K50
C 1408		CKSRYB271K50
C 1409	22µF/16V	CCL1044
C 1602		CKSQYB104K16
C 1603		CKSQYB104K16
C 1604		CKSQYB104K16
C 1605		CKSQYB104K16
C 1606		CCSRCH8R0D50
C 1607		CCSRCH8R0D50
C 1608		CEAS221M10
C 1609		CCSRCH221J50
C 1610		CCSRCH221J50
C 1611		CCSRCH680J50
C 1612		CCSRCH680J50
C 1613		CCSRCH680J50
C 1614		CCSRCH680J50
C 1616		CKSYB224K16
C 1701		CKSRYB103K25
C 1703		CSZST330M16
C 1705		CKSRYB103K25
C 1706		CKSRYB103K50
C 1707		CKSRYB103K25
C 1710		CKSRYB103K25
C 1711		CKSRYB102K50
C 1712		CKSRYB102K50
C 1802		CEAL220M16

F Unit Number : CWM5438
Unit Name : Grille Unit

MISCELLANEOUS

SW 904	Switch(Eject)	CSN1040
SW 905	Switch(D.Close)	CSN1039

A Unit Number : CWX1809
Unit Name : PCB Unit

C 801		CKSQYB102K50
C 802		CKSQYB102K50

B Unit Number :
Unit Name : Mechanism PCB

D 802	LED	CN504-2
S 805	Switch(Home)	CSN1012

C Unit Number :
Unit Name : Photo PCB

D 801	LED	CN504-2
S 801	Switch(RSTP)	CSN1025
S 802	Switch(MAG)	CSN1012

Miscellaneous Parts List

	PU Unit	CGY1036
M 801	Motor Unit(Spindle)	CXA8217
M 802	Motor Unit(Elevation)	CXB1407
M 803	Motor Unit(Tray)	CXA8656
M 804	Motor Unit(Carriage)	CXA4649
P 801	Photo-Transistor	PT4800
P 802	Photo-Transistor	PT4800
S 803	Switch(TRP)	CSN1012
S 804	Switch(DSP)	CSN1012

6. ADJUSTMENT

1)Precautions

- This unit uses a single power supply (+5V) for the regulator. The signal reference potential, therefore, is connected to REFO(approx. 2.5V) instead of GND.
  If REFO and GND are connected to each other by mistake during adjustments,not only will it be impossible to measure the potential correctly,but the servo will malfunction and a severe shock will be applied to the pick-up. To avoid this,take special note of the following.
  Do not connect the negative probe of the measuring equipment to REFO and GND together. It is especially important not to connect the channel 1 negative probe of the oscilloscope to REFO with the channel 2 negative probe connected to GND.
  Since the frame of the measuring instrument is usually at the same potential as the negative probe,change the frame of the measuring instrument to floating status.
  If by accident REFO comes in contact with GND,immediately switch the regulator or power OFF.

- Always make sure the regulator is OFF when connecting and disconnecting the various filters and wiring required for measurements.

- Before proceeding to further adjustments and measurements after switching regulator ON,let the player run for about one minute to allow the circuits to stabilize.

- Since the protective systems in the unit's software are rendered inoperative in test mode,be very careful to avoid mechanical and /or electrical shocks to the system when making adjustment.

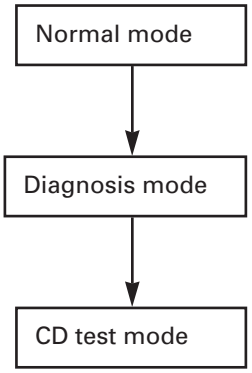
- With this system, elevation is detected by the phototransistor. Therefore, if light hits the phototransistor, elevation may operate incorrectly. Should the system be operated with the upper case removed, use some opaque material to shield the photo transistor from light.

- When unloading magazine during adjustment procedures,always wait for the magazine to be properly ejected before pressing another key.

- Turn power off when pressing the TRK UP or TRK DOWN button during focus search in the test mode. (Or else lens may stick and the actuator may be damaged.)

2)Test Mode

- This unit is adjusted in a combination with the CD control unit (KEX-M9076ZT/UC, etc.). During adjustment, each operation should be done by using the buttons on the CD control unit.
  With the KEX-M9076ZT/UC taken up for reference, a description will be given below concerning how to enter into the test mode, including key operations. The key in the adjustment text is also one of the KEX-M9076ZT/UC keys.



Press the CD key three times, while holding down the [1] and [6] keys simultaneously.

Press the TRK UP and CD keys simultaneously.

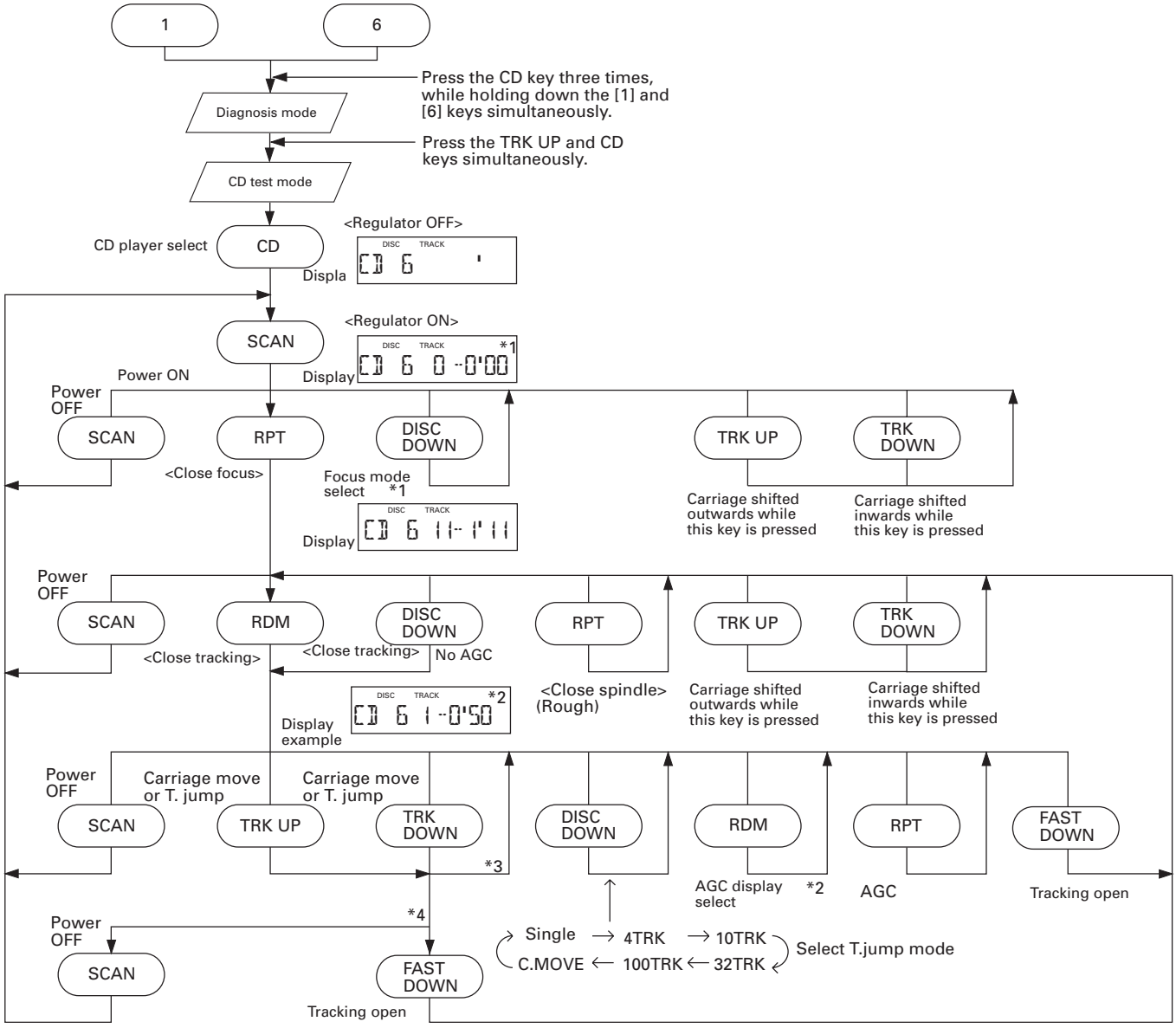
- How to enter into the test mode

- Resetting the test mode
  Switch ACC,back-up Off.

- SINGLE/10TRK/32TRK will continue to operate even after the key is released.Tracking closed the moment C-MOVE is released.

- JUMP MODE resets to SINGLE as soon as power is switched off.

● Flow Chart



(in the case of continuous jumping)

*1 Normal focus close 00 → S curve check 01 → Focus EQ check 02

*2 Normal display → Focus gain → Track gain

*3 100 TRK jump and carriage move → Tracking Close in a little while the keys are released

*4 SINGLE/4/10/32 → continuous even after key release

● Measuring Equipment and Jigs

Adjustment	Measuring equipment and jigs
1 Tracking Error Offset Adjustment 1	DC V Meter
2 Grating Check / Adjustment 1	Oscilloscope, ABEX TCD-784 (or SONY TYPE 4), Two L.P.F., Clock Driver
3 Grating Adjustment 2	Oscilloscope, Grating Adjustment Filter (B.P.F.),mV Meter, ABEX TCD-784 (or SONY TYPE 4), Two L.P.F., Clock Driver
4 Tracking Balance Adjustment 1	Oscilloscope, L.P.F., ABEX TCD-784 (or SONY TYPE 4)
5 Focus Bias Adjustment	Oscilloscope, ABEX TCD-784 (or SONY TYPE 4)
6 RFO Offset Adjustment	Oscilloscope, ABEX TCD-784 (or SONY TYPE 4)
7 Tracking Error Offset Adjustment 2	DC V Meter
8 Tracking Balance Adjustment 2	Oscilloscope, L.P.F., ABEX TCD-784 (or SONY TYPE 4)

● Adjustment Point and Test Point

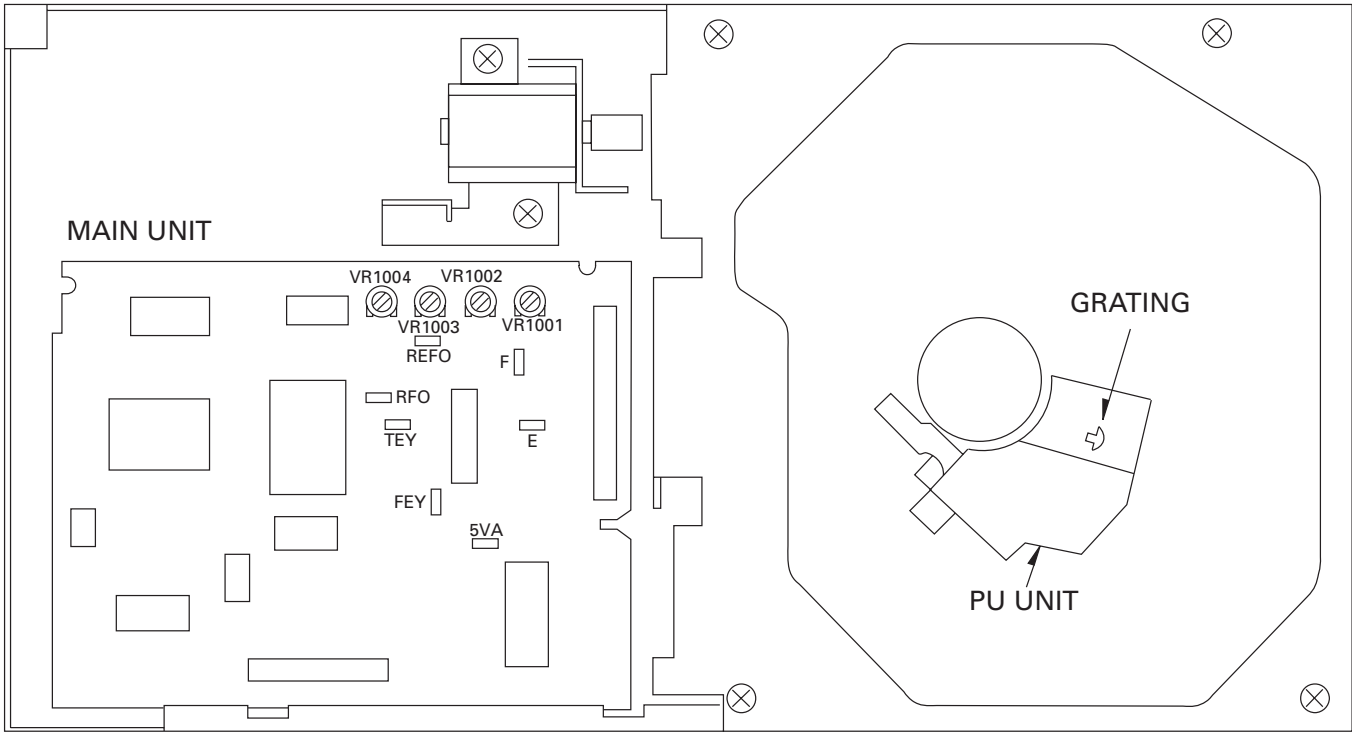


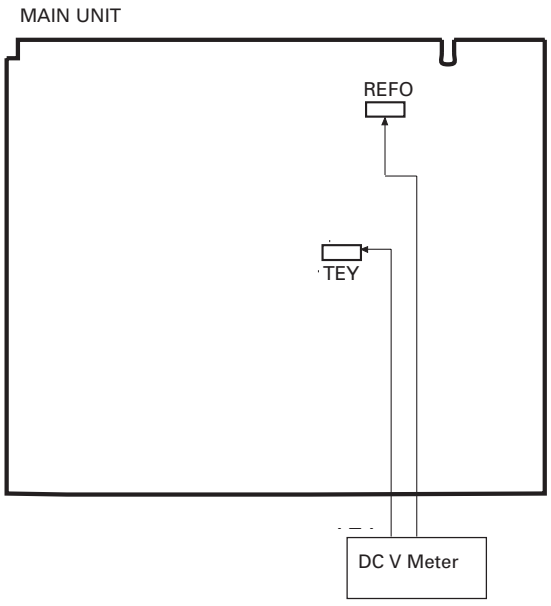
Fig. 18

1 Tracking Error Offset Adjustment 1

•Purpose :
To adjust the offset of the tracking servo to zero.

•Symptoms of Mal-adjustment :
Track search NG, carriage runaway, poor playability.

•Measuring Equipment / Jig	•DC V Meter
•Measuring Point	•TEY
•Test Disc , Mode	•No disc, TEST MODE
•Adjustment Point	•VR1001(TE OFFSET VR)



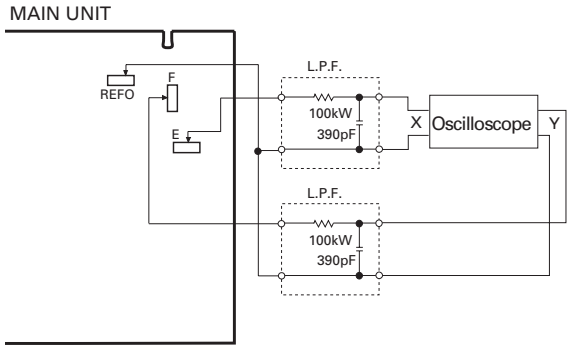
Adjustment Procedure
1.Switch the regulator on.
2.Using VR1001(TE OFFSET) adjust DC voltage of TEY from REFO to 0±25mV.

2 Grating Check / Adjustment 1

•Purpose :
To check that the PU grating is correctly aligned after the PU unit has been replaced.

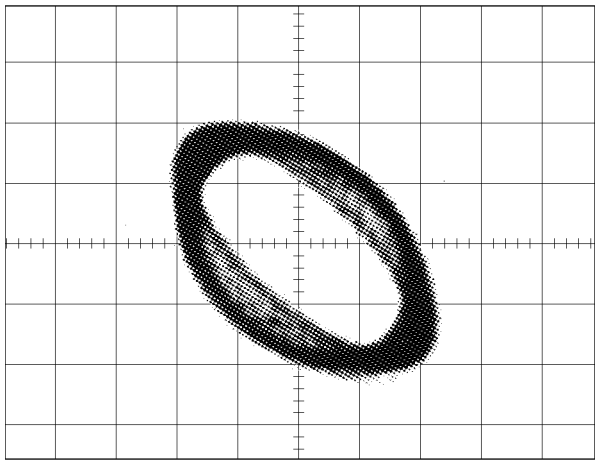
•Symptoms of Mal-adjustment :
Unable to play disc, track skip during search, search NG.

•Measuring Equipment / Jig	•Oscilloscope, Two L.P.F., Clock Driver
•Measuring Point	•E, F
•Test Disc , Mode	•ABEX TCD-784 (or SONY TYPE 4), TEST MODE
•Adjustment Point	•Grating hole



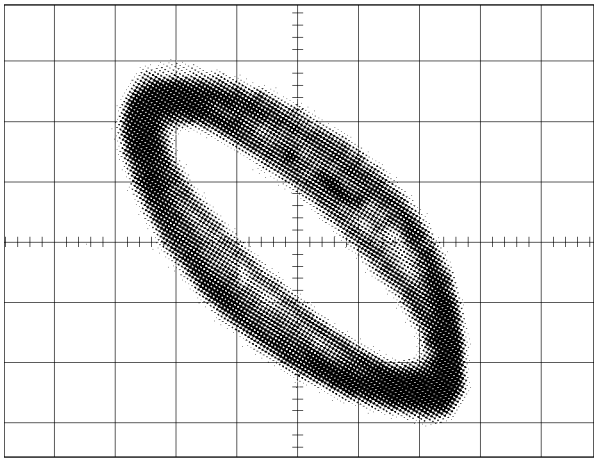
Adjustment Procedure
1.Load disc and switch regulator on.
2.Position the PU unit in the center of the disc using the **TRK UP and TRK DOWN** keys.
3.Press key **RPT** to close focus and press once more to close spindle.
4.Input the L.P.F. output of E to the X axis, and L.P.F. output of F to the Y axis of an oscilloscope by the AC mode, observe lissajous, and check that the grating is within ±45°. (See Waveform 1–3).
5.If the grating is over 45°, make a fine adjustment by slowly turning the screw driver, so that the lissajous is in line. If, however during the adjustment the screw driver should be turned too much and the lessajous should become out of line, proceed to the next grating adjustment 2.

Lissajous figure (AC input)
Horizontal axis E 10mV/div.
Vertical axis F 10mV/div.



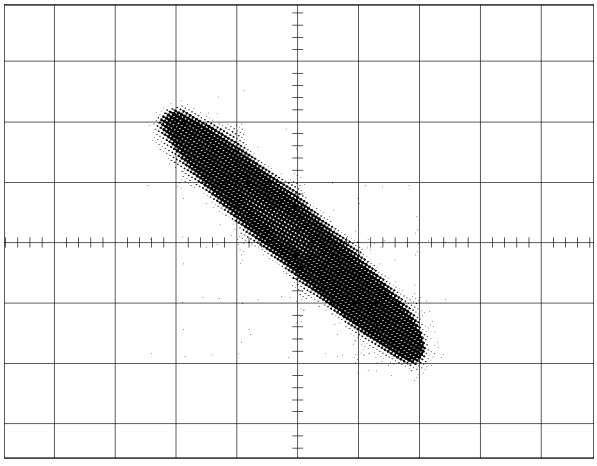
60°=NG

Waveform 1



45°=OK
(Limit)

Waveform 2



0°=BEST
(Doesn't become a single line due to eccentricity)

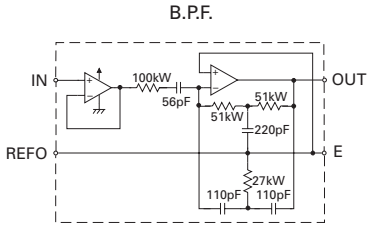
Waveform 3

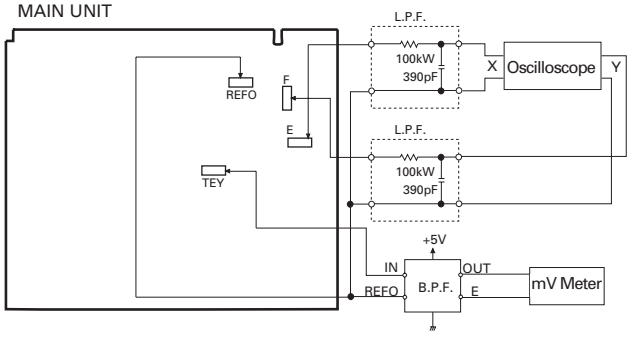
3 Grating Adjustment 2

•Purpose :
This needs to be done if the grating adjustment 1 is unsuccessful.

•Symptoms of Mal-adjustment :
Unable to play disc, track skipping, track search NG.

•Measuring Equipment / Jig	•Oscilloscope, Grating Adjustment filter (B.P.F.), mV Meter, Two L.P.F., Clock Driver
•Measuring Point	•TEY, E, F
•Test Disc , Mode	•ABEX TCD-784 (or SONY TYPE 4), TEST MODE
•Adjustment Point	•Grating hole



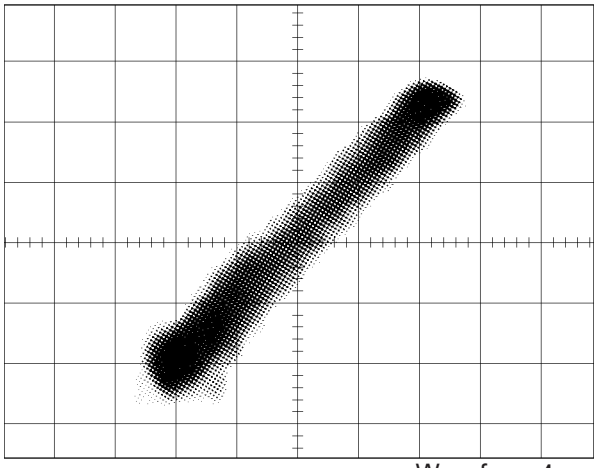


Adjustment Procedure

1. Load disc and switch regulator on.
2. Position the PU unit in the center of the disc using the **TRK UP and TRK DOWN** keys.
3. Press key **RPT** to close focus and press once more to close spindle.
4. While observing the TEY filter output using an ACmV meter, use a screwdriver to slowly turn the grating hole.
   The AC level, should become larger or smaller by turning the grating hole, try to find the minimum level point.
   (This is where the grating is in line on track, and is the "null point".)
5. Turn the screwdriver clockwise from the null point (from the PU under side), so that the lissajous is in line as much as possible.

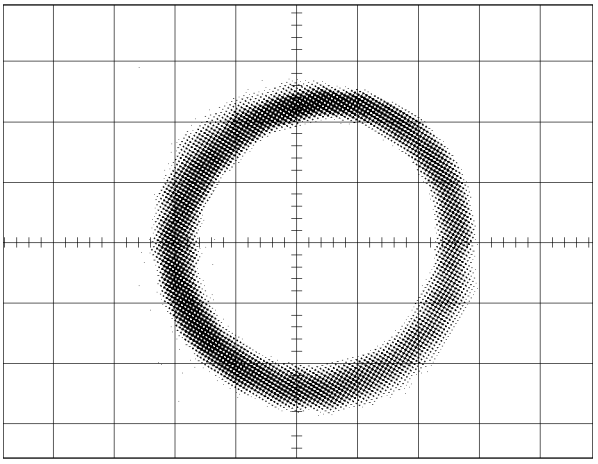
Lissajous figure (AC input)
Horizontal axis E 10mV/div.
Vertical axis F 10mV/div.

Null Point=180°



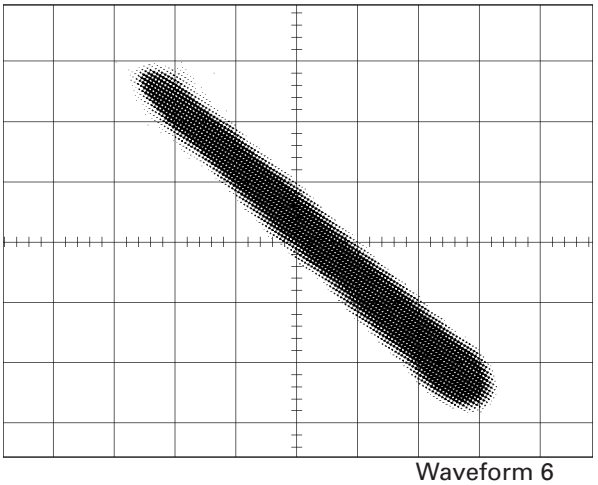
Waveform 4

"Rough" adjustment=90°



Waveform 5

Final adjustment=0°



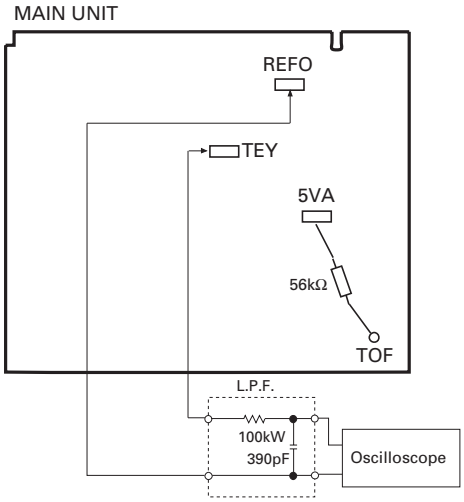
Waveform 6

4 Tracking Balance Adjustment 1

•**Purpose :**
To equate the sensitivity of the F channel to that of the E channel.

•**Symptoms of Mal-adjustment :**
Track search NG, poor playability carriage runaway.

•**Measuring Equipment / Jig**	•Oscilloscope, L.P.F.
•**Measuring Point**	•TEY
•**Test Disc , Mode**	•ABEX TCD-784 (or SONY TYPE 4), TEST MODE
•**Adjustment Point**	•VR1002 (T.BAL VR)



Pull up the TOF terminal to the 5VA terminal with a 56kΩ resistor. (This is in order to cancel lens offset in the tracking direction.)

Adjustment Procedure

1.Load disc and switch the regulator on.
2.Position the PU unit in the center of the disc using the **TRK UP and TRK DOWN** keys.
3.Press key **RPT** to close focus and press once more to close spindle.
4.Observing the TEY waveform on the oscilloscope, adjust VR1002 (T.BAL) until the positive and negative halves have the same amplitude (see waveform 7–9).

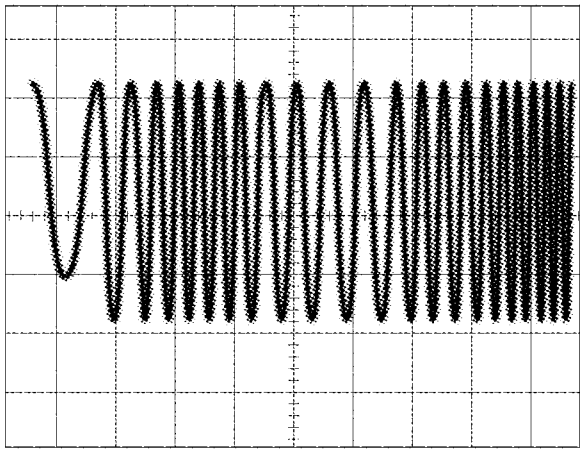
Check

After adjustment the TEY waveform should have an amplitude of 1.5±0.65 Vpp (ABEX TCD-784 or SONY TYPE 4)

DC Mode
0.5V/div.
5ms/div.

+5% NG

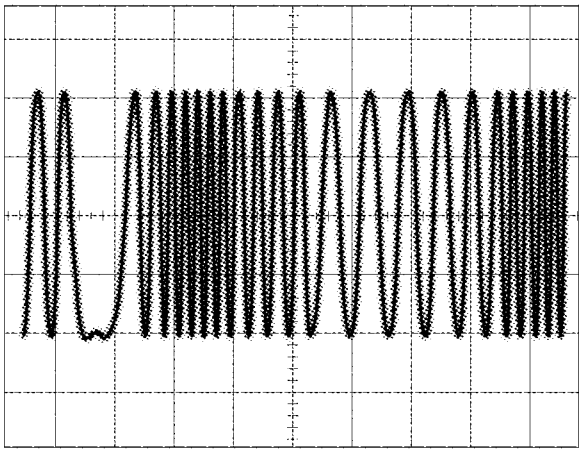
REFO →



Waveform 7

±0% OK

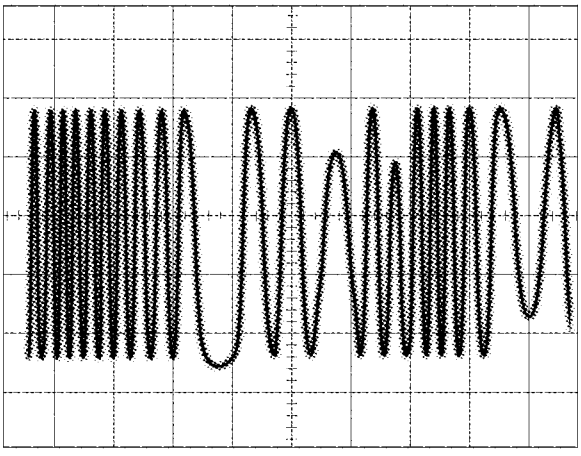
REFO →



Waveform 8

–5% NG

REFO →



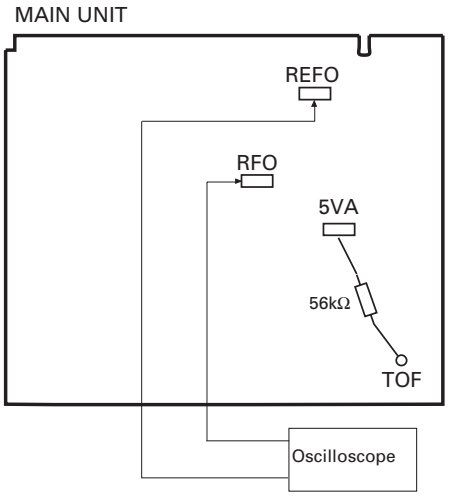
Waveform 9

5 Focus Bias Adjustment

•Purpose :
To adjust the focus servo reference so that the RF waveform is an optimum.

•Symptoms of Mal-adjustment :
Difficulty in closing focus, poor playability.

•Measuring Equipment / Jig	•Oscilloscope
•Measuring Point	•RFO
•Test Disc , Mode	•ABEX TCD-784 (or SONY TYPE 4), NORMAL MODE
•Adjustment Point	•VR1003 (FE BIAS VR)



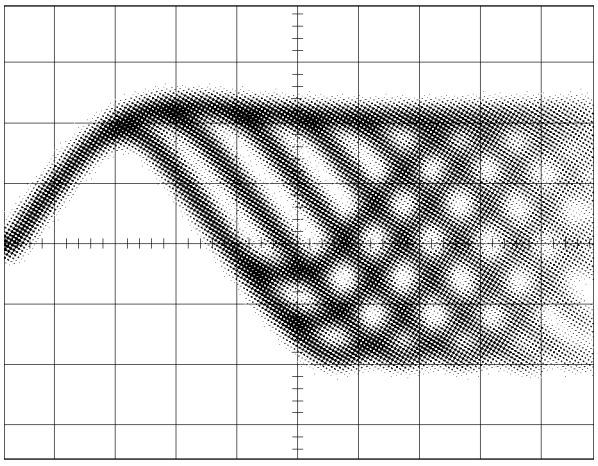
Pull up the TOF terminal to the 5VA terminal with a 56kΩ resistor. (This is in order to cancel lens offset in the tracking direction.)

Adjustment Procedure

1. Play track number 18.
2. Observe the RFO from REFO on an oscilloscope, and adjust VR1003 (FE BIAS) so that the RF waveform is maximum and eye pattern is optimum. (See waveform 10, 11)
3. Remove the pull-up resistor after completing adjustment.

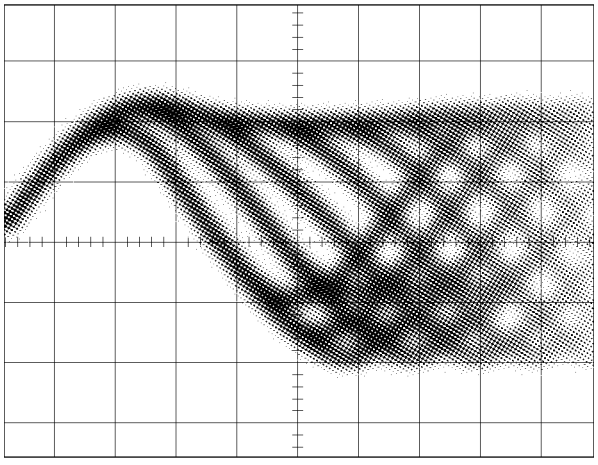
Check

After adjustment the RFO waveform should have an amplitude of 1.7±0.65 Vpp (ABEX TCD-784 or SONY TYPE 4)



OK

Waveform 10



NG

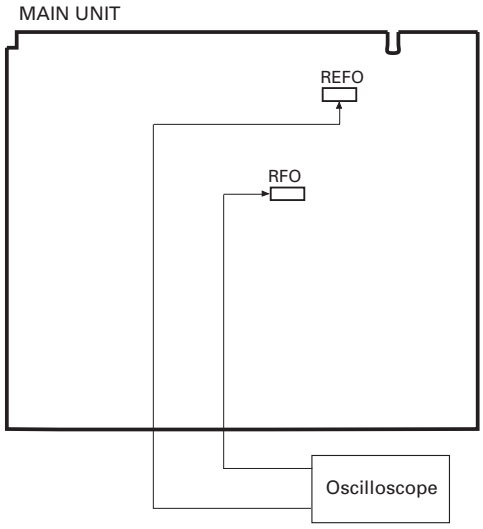
AC Mode Before adjustment Waveform 11

6 RFO Offset Adjustment

•Purpose
To adjust the RFO waveform offset to an optimum.

•Symptoms of Mal-adjustment
Difficulty in closing focus, poor playability.

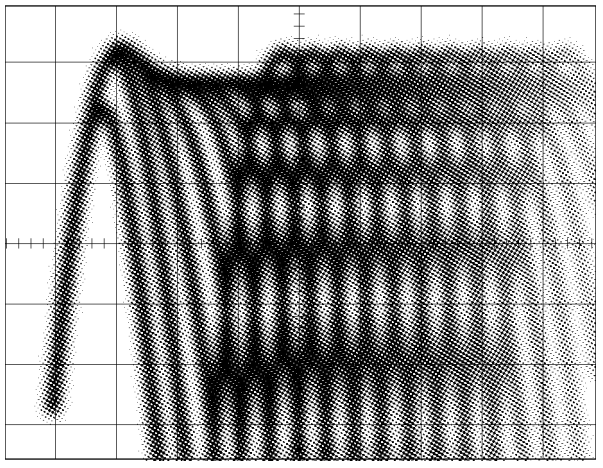
•Measuring Equipment / Jig	•Oscilloscope
•Measuring Point	•RFO
•Test Disc , Mode	•ABEX TCD-784 (or SONY TYPE 4), NORMAL MODE
•Adjustment Point	•VR1004 (RFO OFFSET VR)



Adjustment Procedure
1. Make sure the TOF terminal's pull-up resistor has been disconnected.
2. Play track number 18.
3. Adjust VR1004 so that the peak value of the upper envelope of the RFO waveform is at +1.1VDC w.r.t. REFO(See waveform 12–14).

DC Mode
0.2V/div.
0.5µs/div.

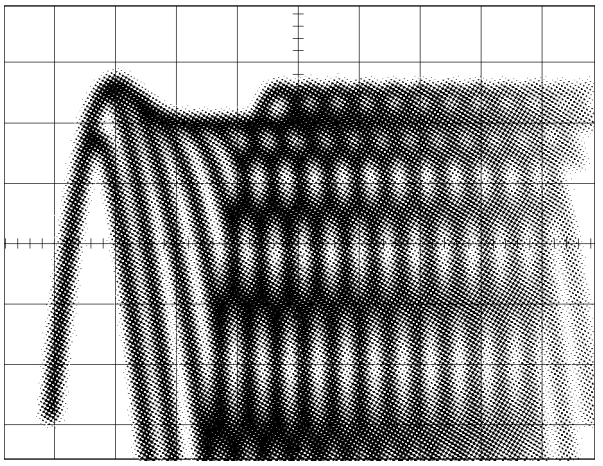
+100mV NG



REFO →

Waveform 12

OK

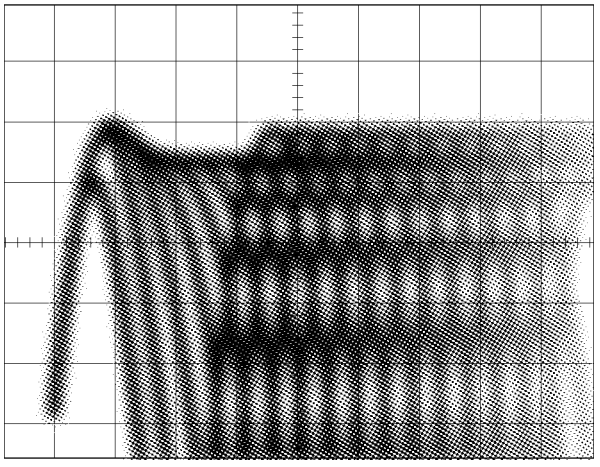


1.1V

REFO →

Waveform 13

–100mV NG



REFO →

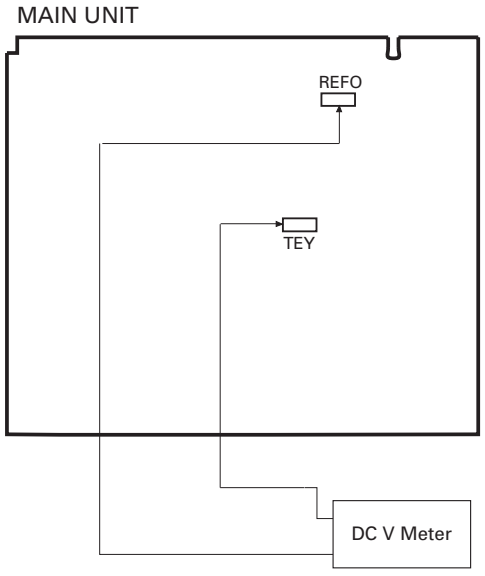
Waveform 14

7 Tracking Error Offset Adjustment 2

•Purpose :
To check the offset of the tracking servo is zero and adjust if necessary.

•Symptoms of Mal-adjustment :
Track search NG, carriage runaway.

•Measuring Equipment / Jig	•DC V Meter
•Measuring Point	•TEY
•Test Disc , Mode	•No disc, TEST MODE
•Adjustment Point	•VR1001(TE OFFSET VR)



Adjustment Procedure

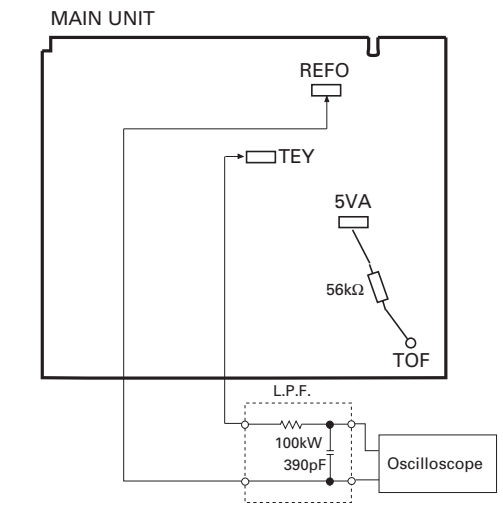
1.Switch the regulator on.
2.Confirm that the DC voltage of TEY from REFO is 0±25mV.
3.If not, readjust and proceed to tracking balance adjustment 2.

8 Tracking Balance Adjustment 2

•Purpose :
To equate the sensitivity of the F channel to that of the E channel.This needs only be done if the TE OFFSET volume was re-adjusted in the previous step.

•Symptoms of Mal-adjustment:
Track search NG, carriage runaway.

•Measuring Equipment / Jig	•Oscilloscope, L.P.F.
•Measuring Point	•TEY
•Test Disc , Mode	•ABEX TCD-784 (or SONY TYPE 4), TEST MODE
•Adjustment Point	•VR1002 (T.BAL VR)



Pull up the TOF terminal to the 5VA terminal with a 56kΩ resistor. (This is in order to cancel lens offset in the tracking direction.)

Adjustment Procedure

1.Load disc and switch the regulator on.
2.Position the PU unit in the center of the disc using the **TRK UP and TRK DOWN** keys.
3.Press key **RPT** to close focus and press once more to close spindle.
4.Observing the TEY waveform on the oscilloscope, adjust VR1002 (T.BAL) until the positive and negative halves have the same amplitude (See waveform 7–9).
5. Remove the pull-up resistor after completing adjustment.

Check

After adjustment the TEY waveform should have an amplitude of 1.5±0.65 Vpp. (ABEX TCD-784 or SONY TYPE 4)

7. GENERAL INFORMATION

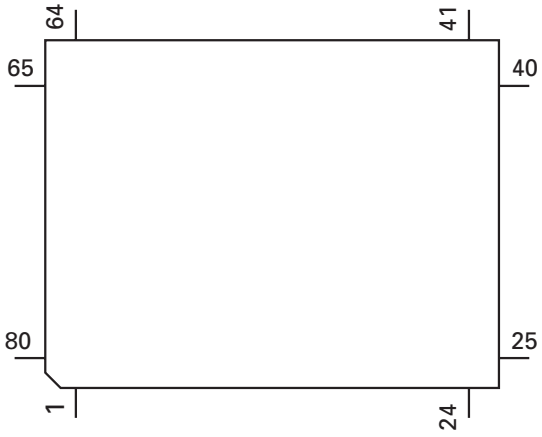
7.1 IC

● **Pin Functions (PD5408A)**

Pin No.	Pin Name	I/O	Format	Function and Operation
1	$\overline{\text{TIN}}$	I		Disc sense timing input
2	TEMP	I		Temperature detector
3	VDIN	I		Power supply short sensor input
4	$\overline{\text{CLAMP}}$	I		Tray position input
5	IEIN	I		IE-BUS data input
6	IEOUT	O	C	IE-BUS data output
7	IEPW	O	C	IE-BUS driver power supply control output
8	A0	O	C	Control signal distingshing from LSI
9	$\overline{\text{XSCK}}$	I/O	C	LSI clock input/output
10	XSO	O	C	LSI data output
11	XSI	I		LSI data input
12	$\overline{\text{STB}}$	O	C	LSI strobe output
13	$\overline{\text{RST}}$	O	C	LSI reset output
14	NC			Not used
15	$\overline{\text{DACRST}}$	O	C	D/A converter reset output
16	$\overline{\text{ASENS}}$	I		ACC power sense input
17	$\overline{\text{BSENS}}$	I		Back up power sense input
18,19	NC			Not used
20	ANSW	O	C	Analog switch output
21-23	NC			Not used
24	$\overline{\text{EJSW}}$	I		Eject key switch interrupt input
25	$\overline{\text{MAG}}$	I		Magazine lock switch interrupt input
26	DCLSW	I		Door close switch
27	$\overline{\text{RESET}}$	I		Reset input
28	POWER	O	C	CD +5V control
29	CONT	O	C	Servo driver power supply control
30	XIN	I		Crystal oscillating element connection pin
31	XOUT	O		Crystal oscillating element connection pin
32	VSS			GND
33-41	NC			Not used
42	$\overline{\text{MMSEN}}$	I		Multi / audio input
43-49	NC			Not used
50	OPTSW	I		Digital output ON/OFF input
51-54	NC			Not used
55	VMCONT	O	C	VM voltage control output
56	NC			Not used
57	$\overline{\text{EJP}}$	I		Reset position switch input
58	$\overline{\text{EJLED}}$	O	C	Eject key illumination control output
59	SYSMUT	O	C	System mute output
60	MIRR	I		Mirror detector input
61	LOCK	I		Spindle lock detector input
62	FOK	I		FOK signal input
63	$\overline{\text{HOME}}$	I		Home position detector input
64	NC			Not used
65	LOAD	O	C	Mechanism power supply control
66-69	I3,I1,I2,I4	O	C	Motor driver control output
70	$\overline{\text{CDMUTE}}$	O	C	CD mute output
71	NC			Not used
72	$\overline{\text{TESTIN}}$	I		Test program mode input
73	VCC			Back up 5V
74	VREF	I		A/D converter reference voltage input
75	AVSS	I		A/D converter GND

Pin No.	Pin Name	I/O	Format	Function and Operation
76,77	NC			Not used
78	$\overline{\text{DISK}}$			Disc detector input
79	$\overline{\text{TSEL}}$	I		Tray position detector photo sensor
80	NC			Not used

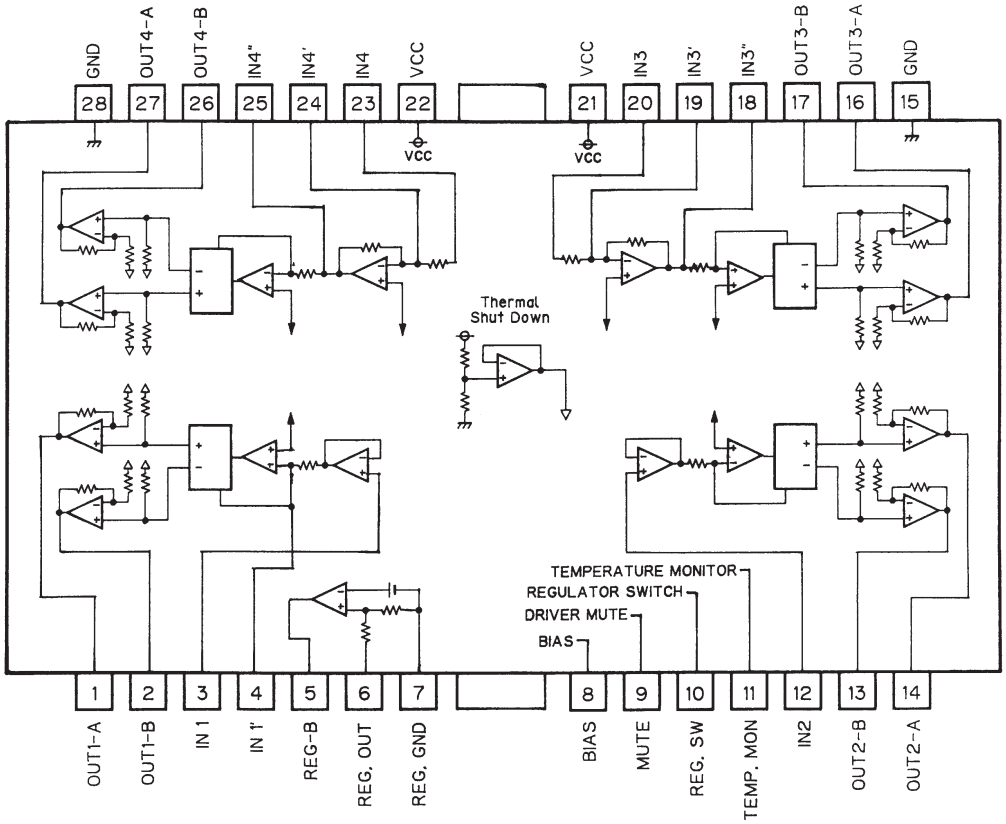
*PD5408A



Format	Meaning
C	C MOS

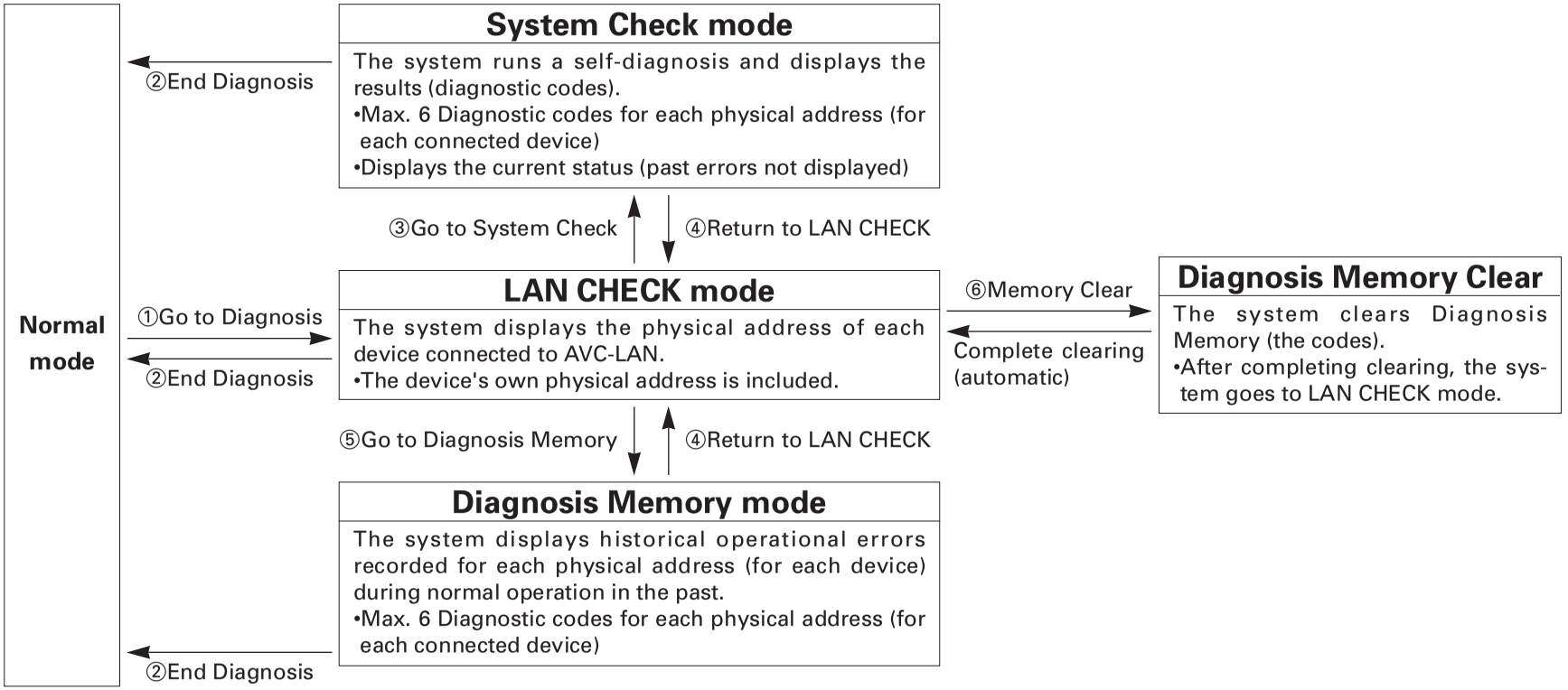
IC's marked by are MOS type.*
Be careful in handling them because they are very liable to be damaged by electrostatic induction.

BA6797FM



● **AVC-LAN Diagnosis Mode**

● **Flowchart and Functions**


Normal mode
①Go to Diagnosis
②End Diagnosis
②End Diagnosis
System Check mode
The system runs a self-diagnosis and displays the results (diagnostic codes).
•Max. 6 Diagnostic codes for each physical address (for each connected device)
•Displays the current status (past errors not displayed)
③Go to System Check
④Return to LAN CHECK
LAN CHECK mode
The system displays the physical address of each device connected to AVC-LAN.
•The device's own physical address is included.
⑤Go to Diagnosis Memory
④Return to LAN CHECK
Diagnosis Memory mode
The system displays historical operational errors recorded for each physical address (for each device) during normal operation in the past.
•Max. 6 Diagnostic codes for each physical address (for each connected device)
②End Diagnosis
⑥Memory Clear
Complete clearing (automatic)
Diagnosis Memory Clear
The system clears Diagnosis Memory (the codes).
•After completing clearing, the system goes to LAN CHECK mode.

● **Operation Specifications**

	KEX-M9076ZT/UC
①Go to Diagnosis	Press the CD key three times, while holding down CH1 or CH6.
②End Diagnosis	CD key (Press and hold for 1.7 seconds.) ACC OFF/ON
③Go to System Check	CH1
④Return to LAN CHECK	CH6
⑤Go to Diagnosis Memory	CH2
⑥Memory Clear	CH5 (Press and hold for 1.7 seconds.)
•Page up	TUNE +
•Page down	TUNE -

● Physical Address Assignment

② →

③ ↓

①1	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	M.DISP computer				AV machine	1DIN -TV	EMV		Audio ECU	Audio H/U		Rear seat TV	Rear control SW		CD-CH commander	
8								CD-ROM navigation				Display with SW			MD-CH commander	
1-8 A-F																

①2	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	Navigation computer	ATIS	FM multiple	TV tuner	CD-CH with video											
1-F																

①3	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	Radio		Cassette	Radio/cassette without CH controller	CD-P		CD-CH		MD-P		MD-CH		DAT		DCC	
8																TEL ECU
1-7 9-F																

①4	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	Equalizer				DSP				H. W AMP							
1-F																

①5	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	GPS receiver	ATIS decoder	FM multiplex decoder		CD-CH		MD-CH		CD-ROM -CH		MD-ROM -CH					
1-F																

①6	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	A/C computer								Body computer							
1-F																

Display

1 — ①②③

Serial No. Physical address

Example: 2—190

||

The second device connected is an "audio H/U."

①Device groups

1 : Controllers
2 : Video output devices
3 : Audio output devices
4 : Audio processing devices
5 : Information output devices
6 : Vehicle devices

● Assignment of Diagnostic Codes

① →

② ↓	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NO ERR	+B error	Micropro-cessor error			Cassette deck error	CD deck or CD-CH error	MD deck or MD-CH error	Amplifier error	EQ error	Switch error	AUDIO ECU error		No response to commu-nications		
1		ACC error	ROM error		AM tuner error	Cassette deck EJT failure	CD, CH EJT failure	MD, CH ←						Commu-nications failure		
2		MUTE error	RAM error		FM tuner error	Tape entan-gled in the cassette deck	Dirt, scar and upside-down in CD, CH	MD, CH ←						No response to periodical communica-tions		
3						Dirt in cassette deck head	Detected P.U tem-perature in CD, CH	MD, CH ←								
4						Broken cassette deck belt	Detected overcur-rent in CD, CH	MD, CH ←						*1		
5					TV tuner error			MD, CH recording function error								
6																
7							CH tray error									
8							CH elevator error	CH ←	DSP error	LCD error	Antenna error					
9							CD, CH clamp error	MD, CH ←			Main antenna error					
A											Sub antenna error					
B											TV antenna error					
C											Antenna selector error					
D/E																
F																No response to Diagnosis

Common Diagnostic code among devices

Diagnostic code specific to a particular device

Diagnostic code for communications

Display

1 — ①②

Serial No. Diagnostic code

Example: 3—D2

||

The third content of Diagnosis is "No response to periodical communications."

NOTES:

*1 Instruction to check for an error in periodical communications is interrupted.

● Items corresponding each model

<During Diagnosis Memory mode>

- CDX-M8086ZT/E (CD-CH)
- CDX-M8186ZT/WL (CD-CH)

D1, D2, D4, 60, 61, 62, 63, 64, 67, 68

<During System Check mode>

- CDX-M8086ZT/E (CD-CH)
- CDX-M8186ZT/WL (CD-CH)

No Diagnostic code assigned 00

● Diagnosis mode(Beep and Display)

	LAN-CHECK mode	System Check mode	Diagnosis Memory mode
Beep	• The system beeps three times when starting up Diagnosis.	• The system beeps three times when changing to another mode. • The system beeps once every time a physical address is displayed.	• The system beeps three times when changing to another mode. • The system beeps once every time a physical address is displayed.
Display	• The system displays the physical address of each device connected to AVC-LAN in sequence from the lowest address. Example: 1 — 1E0 Serial No. Physical address (CD commander)	• When changing to another mode Blinking "SYS" is displayed. • After completing System Check Displays a physical address. ••Identifies the device. Example: H 150 Physical address (1DIN-TV) Distinguishes from LAN-CHECK. Displays a Diagnostic code. ••Identifies the type of error. Example: 1 — d2 Serial No. Diagnostic code (no response to periodical communications) Max. 6 for each physical address Displays an auxiliary code ••Identifies the device involved in the error. Example: 1 — 360 Serial No. Physical address (CD-CH) 1DIN-TV has recorded an error indicating there is no response to periodical communications in CD-CH. 1 — ——— When there is no physical address: Displays a physical address. The next lowest physical address • When there is no Diagnostic code after completion of System Check _____ 00 The system changes as shown above, as this unit does not include System Check.	• When changing to another mode Blinking "CODE" is displayed. • Then, "Latest periodical communications number" is displayed. ••Elapsed time at the current point is displayed. Example: _____ 1F Elapsed time (31 minutes) • The system displays a number from 00 to FF (increases a digit every minute). • When 256 minutes are reached, the system returns to 00. • Displays the details of Diagnosis. Displays a physical address. (Same as the left.) Displays a periodical communications number. ••Displays the time when the error occurred. Example: 1 — 02 Serial No. Elapsed time (2 minutes) Displays Diagnostic code. (Same as the left.) Displays an auxiliary code. (Same as the left.) Displays a physical address. • When there is no Diagnostic data: _____ 00

7.2.2 DISASSEMBLY

● **Removing the Case and Holder(Fig.19)**

1. Remove the six screws.
2. Remove the upper case, lower case and holder.

● **Removing the Grille Assy(Fig.19)**

1. Press the four tabs indicated by arrows and then pull out the grille assy.

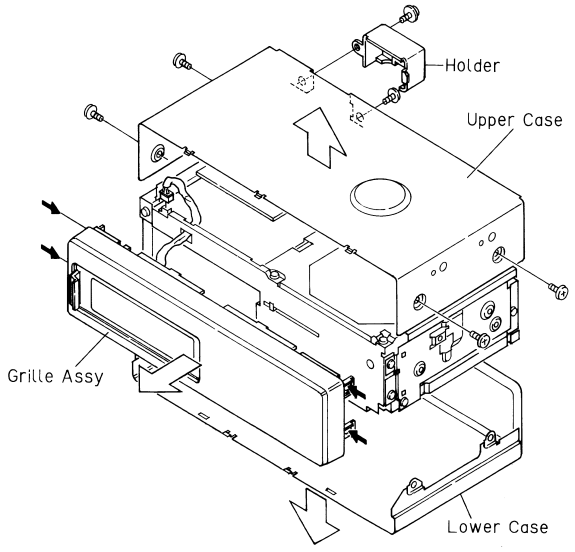


Fig. 19

● **Removing the Extension Unit(Fig.20)**

1. Remove the one screw.
2. Unbend the two tabs indicated by arrows until straight.
3. Remove the extension unit.

● **Removing the Main Unit(Fig.20)**

1. Remove the two screws and earth.
2. Unbend the tab indicated by arrow until straight.
3. Remove the main unit.

NOTE:

Connect the extension PCB to the main unit via the connector, with the printing on the connector facing downward.

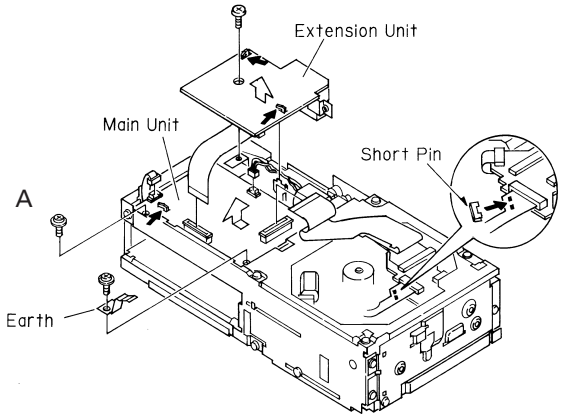


Fig. 20

NOTE:

To prevent screw A from working loose, apply glue between screw A and the main unit when installing the main unit to the CD mechanism unit.

Before disconnecting the connector, attach a short pin as illustrated.

7.2.3 TEST MODE

● ERROR NUMBERS INDICATION

If the CD player will not operate or if it stops operating due to some error, the product enters into the error mode and displays an error code. The error code indicates the presumable cause of the error, which may help you with the troubleshooting and/or repair.

Error mode ..... Mode (A), Mode (B)

(1) Examples of Display

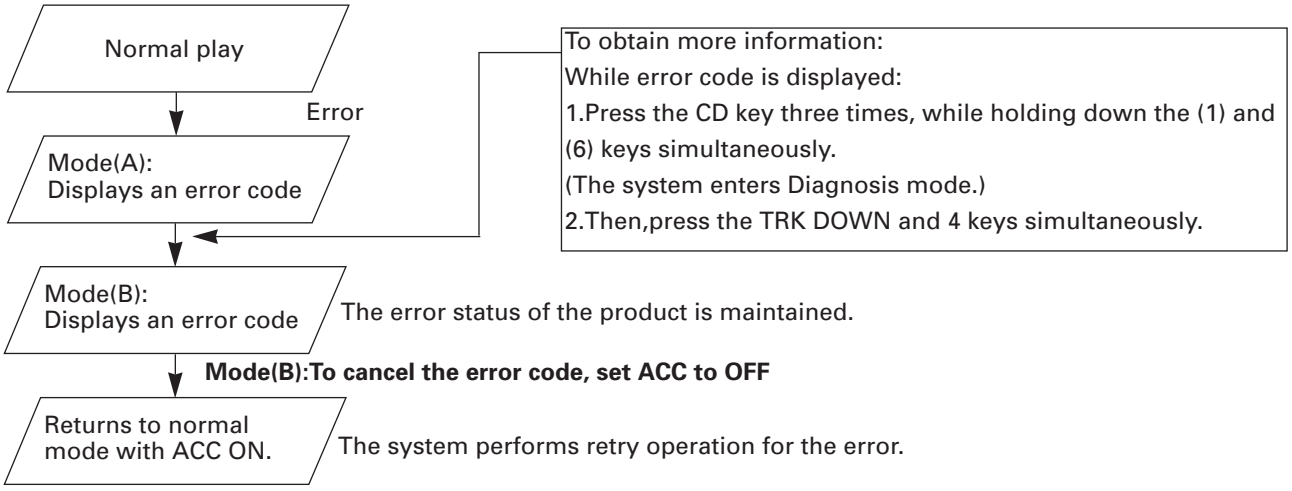
- Mode (A) ..... ERR-X
- Mode (B) ..... ERR-XX

(2) Error Codes

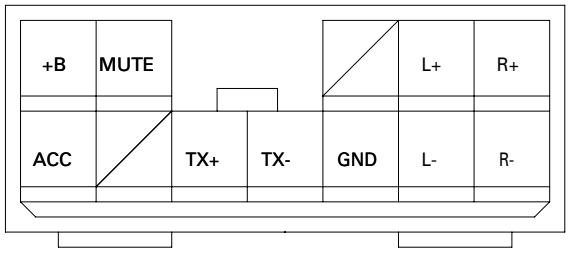
*1	*2	Classification	Description	Cause/Detail
1	10	ELECTRIC	Carriage home failure	Carriage doesn't move to or from the innermost position →Home switch failed and/or carriage immobile
	11	ELECTRIC	Focus search failure	Focusing impossible →Disc loaded upside down, scratches or dirt on a disc, external vibration
	12	ELECTRIC	Spindle lock failure	Spindle failed to lock or subcode unreadable →Spindle failure, scratches or dirt on a disc, external vibration
	14	ELECTRIC	Mirror failure	Unrecorded CD-R (The disc may be loaded upside down.)
	17	ELECTRIC	Set up failure	AGC protection inactivated. Focus is unlocked easily. →Scratches or dirt on a disc, external vibration
	30	ELECTRIC	Search time out	Failed to reach target address →Carriage/tracking failure, scratched disc
4	A0	SYSTEM	Power failure	Higher or lower power than the rated voltage,or no power →SW transistor failure, abnormal power supply, LOAD terminal failure
	50	MECHANISM	Ejection failure	MAG switch release waiting time was over. Elevation time was over.
3	60	MECHANISM	Tray sensing failure	During tray in/out mode, sensing period is over. The tray is stuck when put in.
	70	MECHANISM	Elevation failure	Elevation time is over.
2	80	MECHANISM	An empty magazine inserted	No disc is available

- *1 ..... Mode (A) error code
- *2 ..... Mode (B) error code

The error mode (B) is available when the CD player is combined with a PIONEER CD control unit.


Normal play
Error
Mode(A):
Displays an error code
To obtain more information:
While error code is displayed:
1.Press the CD key three times, while holding down the (1) and (6) keys simultaneously.
(The system enters Diagnosis mode.)
2.Then,press the TRK DOWN and 4 keys simultaneously.
Mode(B):
Displays an error code
The error status of the product is maintained.
Mode(B):To cancel the error code, set ACC to OFF
Returns to normal mode with ACC ON.
The system performs retry operation for the error.

7.2.4 CONNECTOR FUNCTION DESCRIPTION



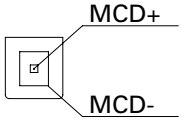
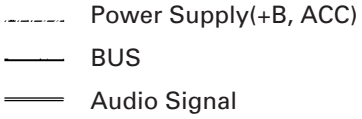


Fig. 21

7.3 EXPLANATION

7.3.1 SYSTEM BLOCK DIAGRAM

● **7 SP SYSTEM**



H/U, AMP : MATSUSHITA
CD-M : PIONEER

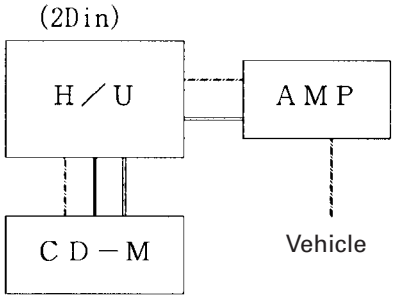
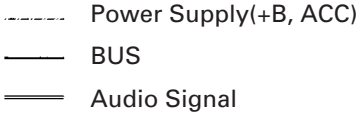


Fig. 22

● **4 SP SYSTEM**



H/U : MATSUSHITA, TEN
CD-M : PIONEER

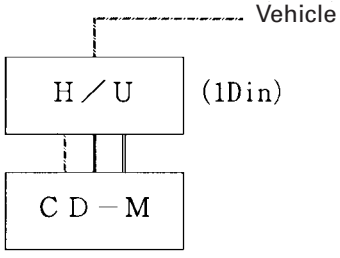
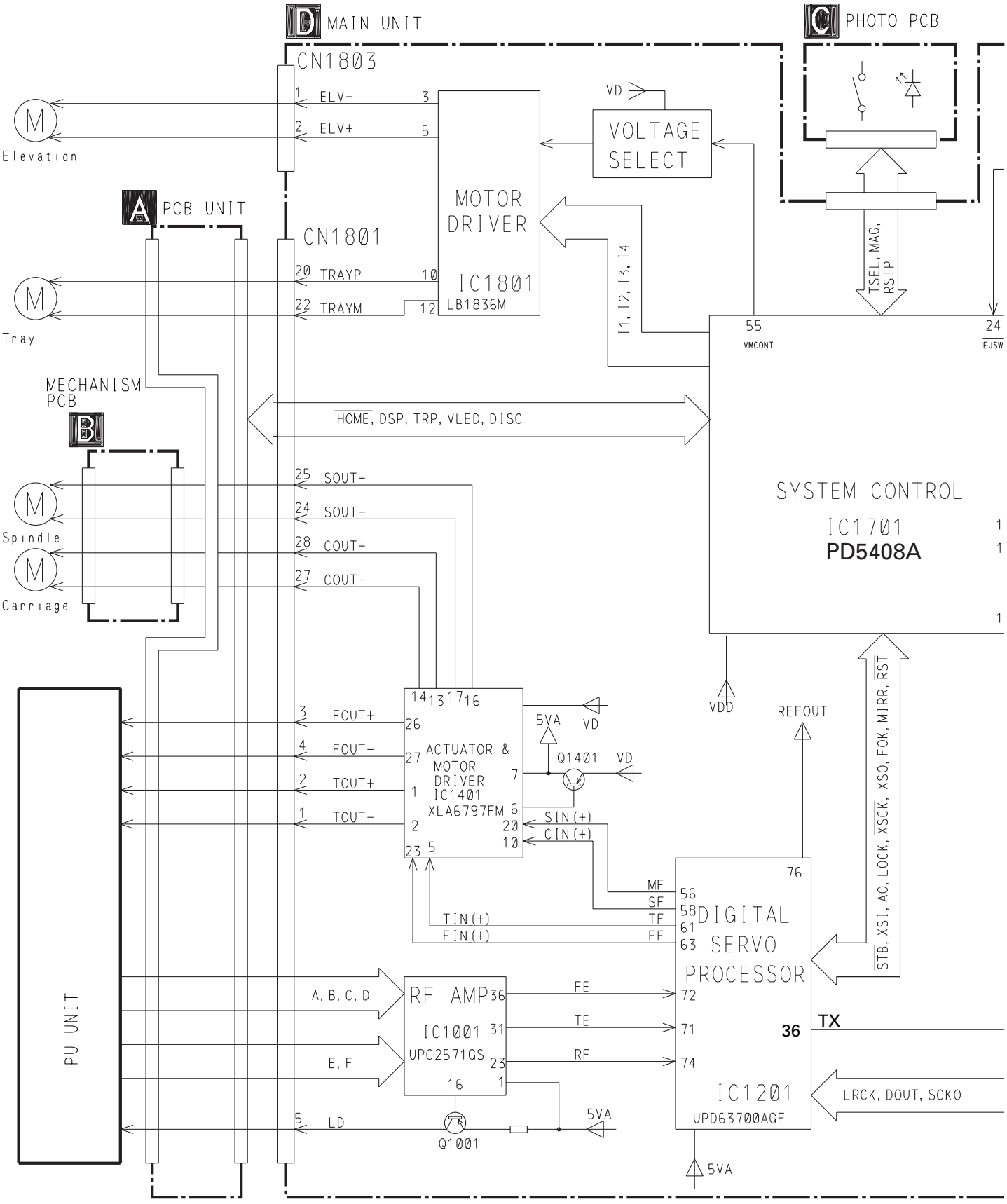


Fig. 23

7.3.2 BLOCK DIAGRAM



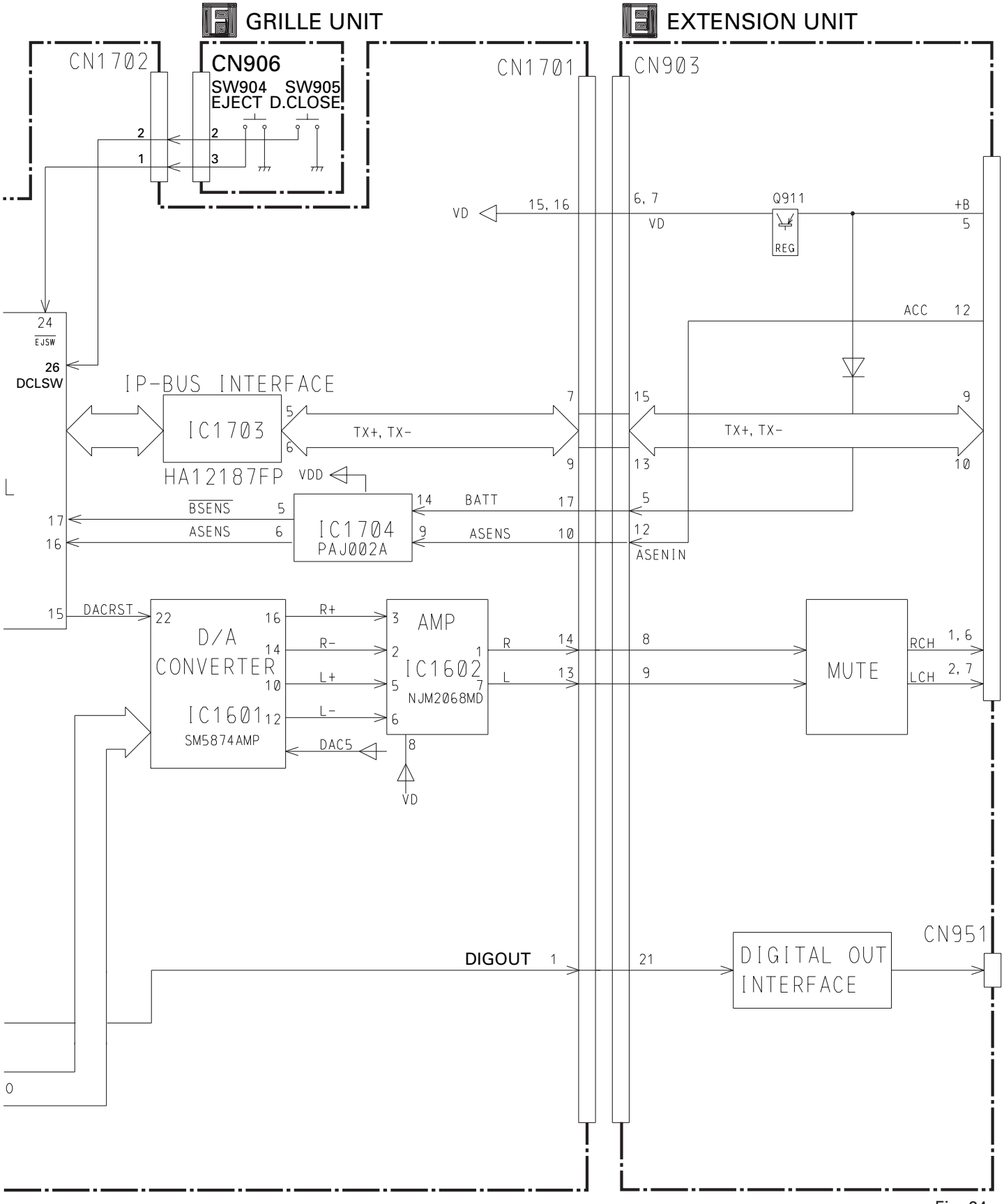

GRILLE UNIT
EXTENSION UNIT
CN1702
CN906
SW904 SW905
EJECT D.CLOSE
CN1701
CN903
VD
15, 16
6, 7
VD
Q911
REG
+B
5
ACC
12
24
EJSW
26
DCLSW
IP-BUS INTERFACE
IC1703
HA12187FP
TX+, TX-
TX+, TX-
VDD
BSENS
ASENS
IC1704
PAJ002A
BATT
ASENS
ASENIN
DACRST
D/A
CONVERTER
IC1601
SM5874AMP
R+
R-
L+
L-
DAC5
AMP
IC1602
NJM2068MD
MUTE
RCH
LCH
DIGOUT
DIGITAL OUT
INTERFACE
CN951

Fig. 24

8. OPERATIONS AND SPECIFICATIONS

8.1 OPERATIONS

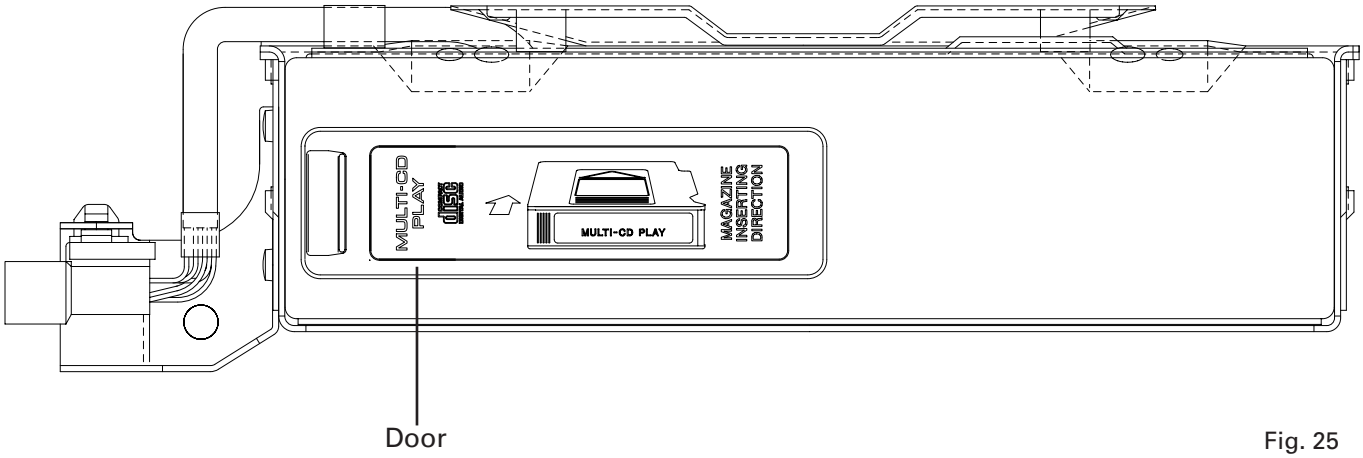


Fig. 25

8.2 SPECIFICATIONS

Power source .....13.2 V(10.5 V — 16.0 V allowable)
Grounding system.....Negative type
Maximum output voltage.....2 Vrms
Frequency characteristics .....±1.5 dB(20 Hz)
±1.5 dB(20 kHz)
Signal-to-noise ratio .....More than 80 dB
Distortion.....Less than 0.1 %
Separation .....More than 65 dB

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